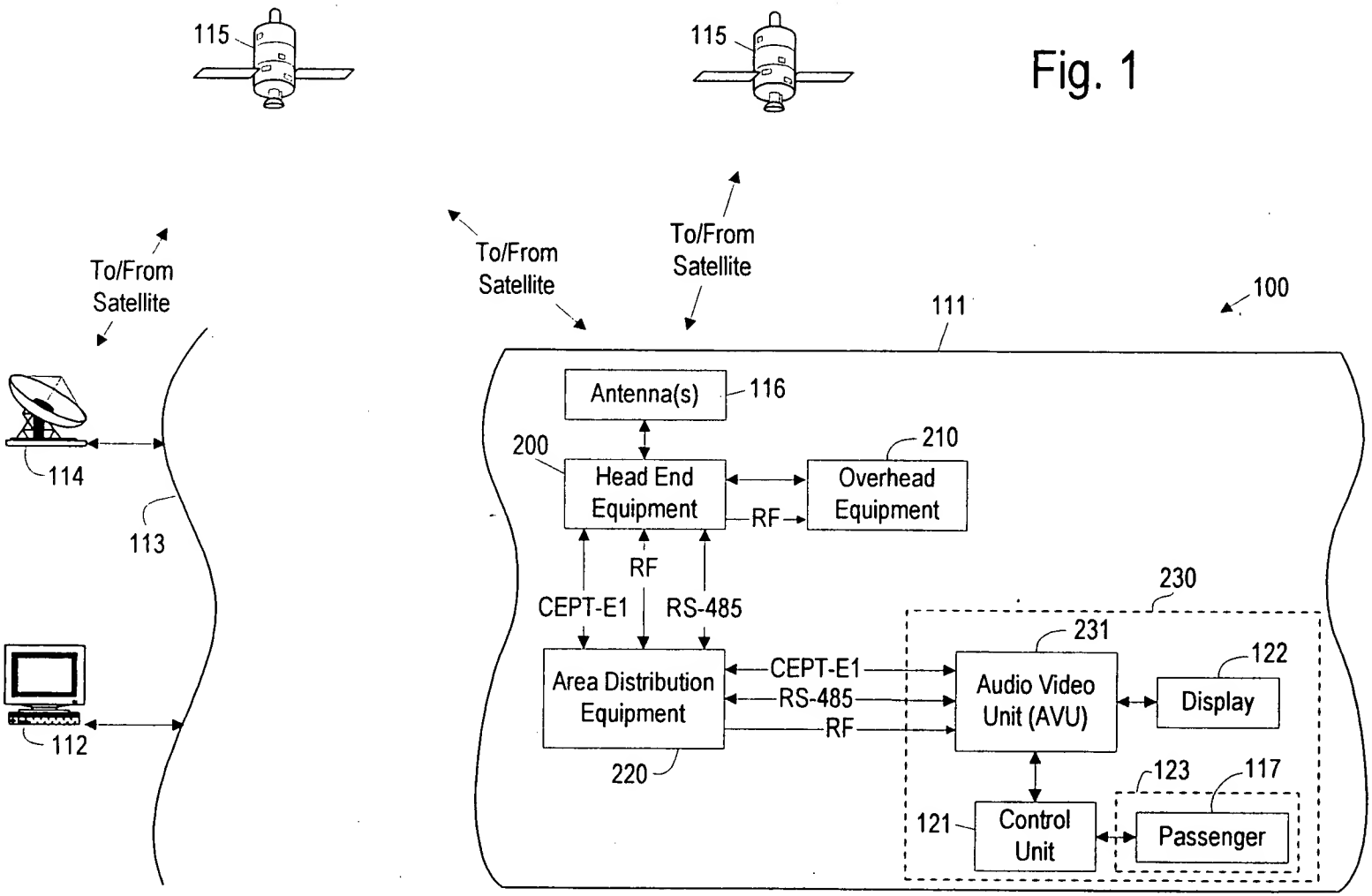

115
115
To/From Satellite
To/From Satellite
To/From Satellite
100
111
Antenna(s)
116
200
Head End Equipment
210
Overhead Equipment
RF
RF
CEPT-E1
RS-485
230
231
Area Distribution Equipment
CEPT-E1
RS-485
RF
Audio Video Unit (AVU)
122
Display
220
123
117
121
Control Unit
Passenger
114
113
112

Fig. 1

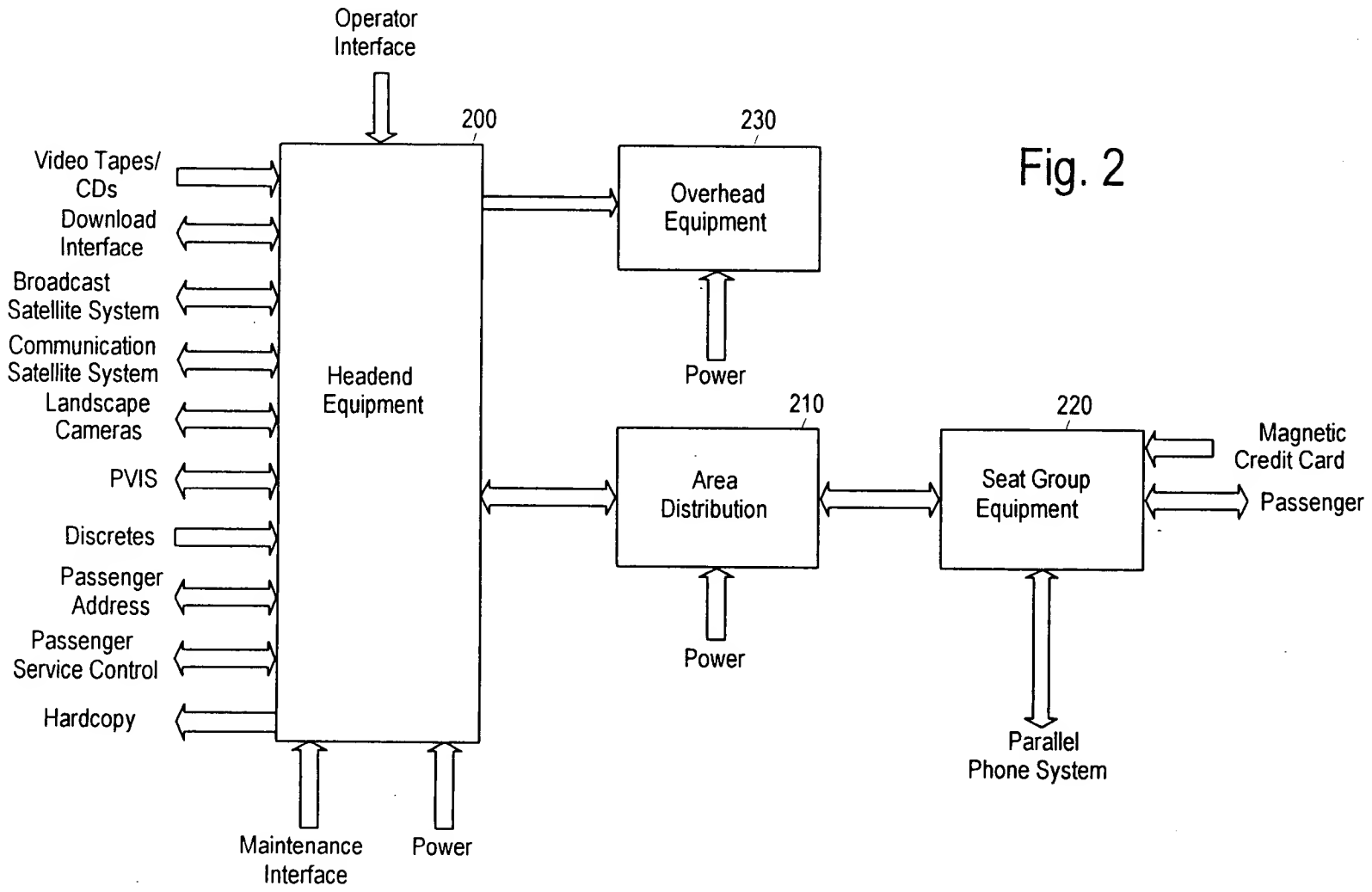

Operator Interface
200
230
Video Tapes/ CDs
Download Interface
Broadcast Satellite System
Communication Satellite System
Landscape Cameras
PVIS
Discretes
Passenger Address
Passenger Service Control
Hardcopy
Headend Equipment
Overhead Equipment
Power
210
220
Area Distribution
Seat Group Equipment
Magnetic Credit Card
Passenger
Power
Parallel Phone System
Maintenance Interface
Power

Fig. 2

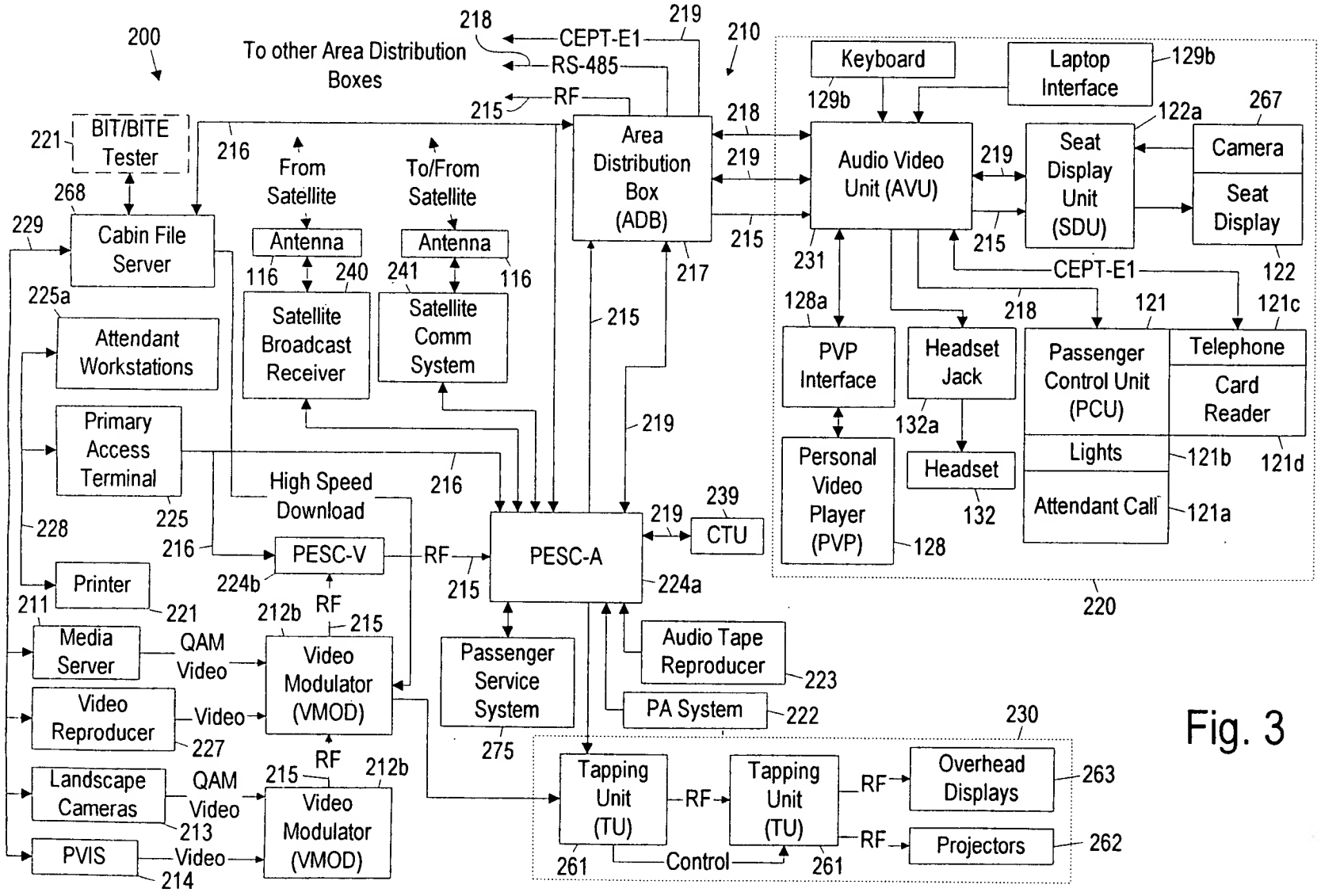

200
To other Area Distribution Boxes
218
CEPT-E1
RS-485
RF
219
210
215
BIT/BITE Tester
221
216
From Satellite
To/From Satellite
Area Distribution Box (ADB)
Keyboard
129b
Laptop Interface
129b
Audio Video Unit (AVU)
Seat Display Unit (SDU)
122a
Camera
267
Seat Display
122
268
Cabin File Server
229
Antenna
Antenna
116
240
241
116
231
217
CEPT-E1
225a
Attendant Workstations
Satellite Broadcast Receiver
Satellite Comm System
128a
121
121c
PVP Interface
Headset Jack
Passenger Control Unit (PCU)
Telephone
Card Reader
Primary Access Terminal
225
132a
Lights
121b
121d
Personal Video Player (PVP)
128
Headset
132
Attendant Call
121a
228
High Speed Download
239
CTU
PESC-V
PESC-A
224b
224a
220
Printer
211
221
212b
RF
Media Server
QAM Video
Video Modulator (VMOD)
Passenger Service System
Audio Tape Reproducer
223
Video Reproducer
Video
227
PA System
222
230
275
Landscape Cameras
213
QAM Video
Tapping Unit (TU)
Tapping Unit (TU)
Overhead Displays
263
PVIS
214
Video
Projectors
262
261
Control
261

Fig. 3

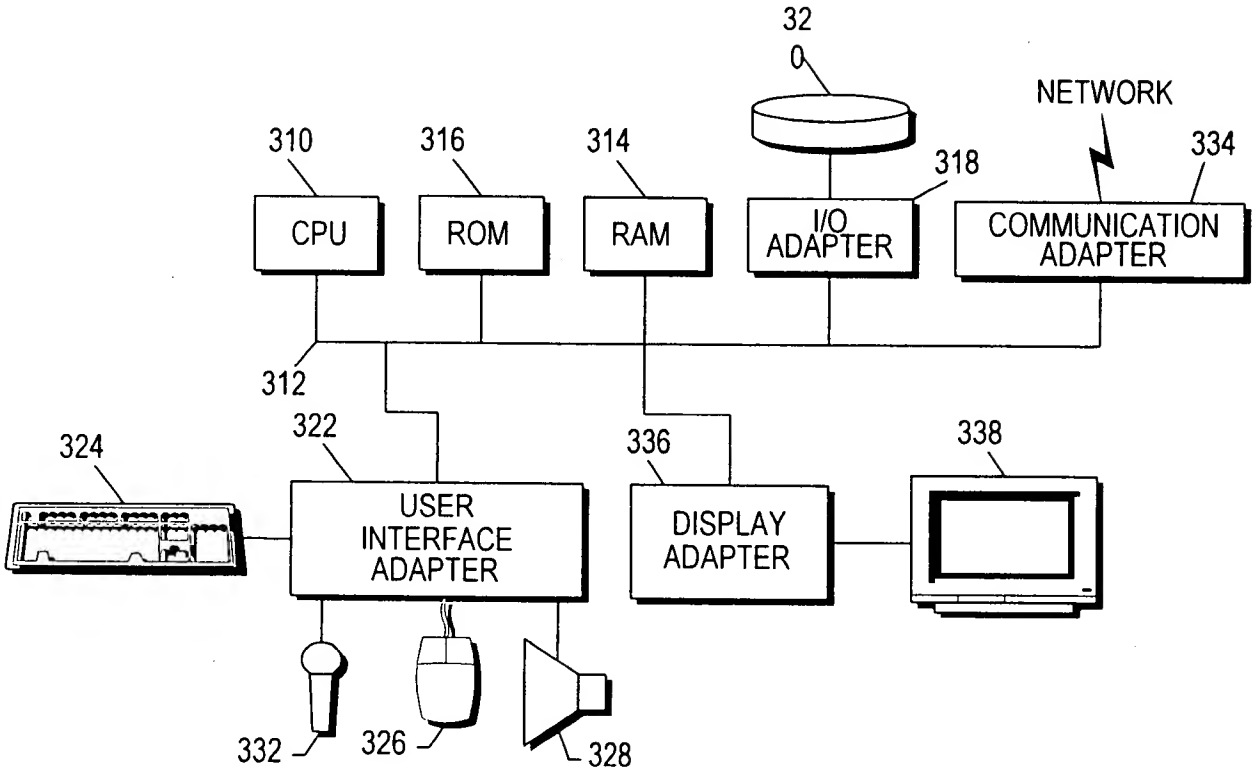

32
0
NETWORK
310
316
314
318
334
CPU
ROM
RAM
I/O
ADAPTER
COMMUNICATION
ADAPTER
312
322
336
338
324
USER
INTERFACE
ADAPTER
DISPLAY
ADAPTER
332
326
328

Fig. 4

Fig. 5

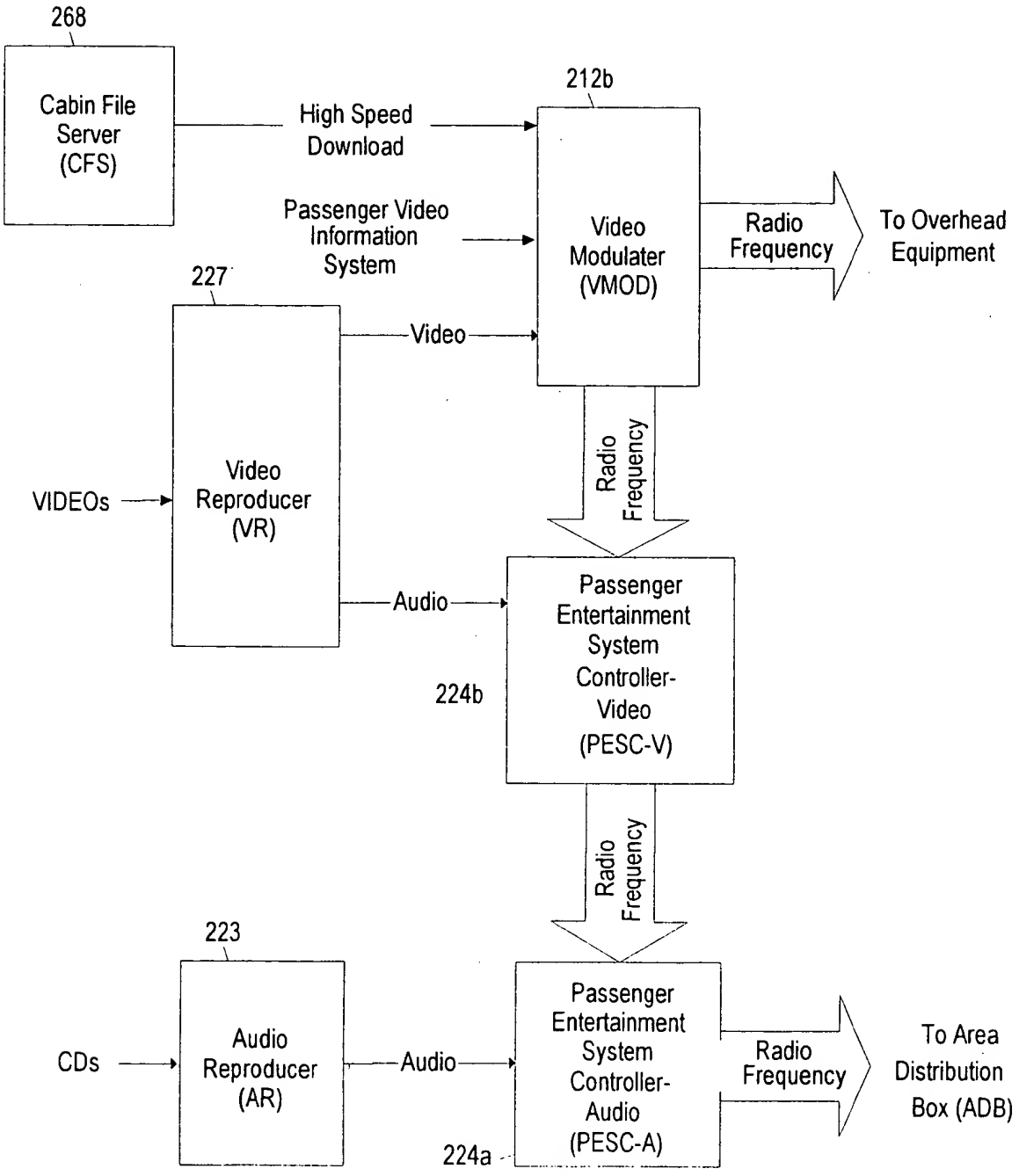

268
Cabin File Server (CFS)
High Speed Download
212b
Passenger Video Information System
Video Modulater (VMOD)
Radio Frequency
To Overhead Equipment
227
Video
VIDEOs
Video Reproducer (VR)
Radio Frequency
Audio
Passenger Entertainment System Controller-Video (PESC-V)
224b
Radio Frequency
223
CDs
Audio Reproducer (AR)
Audio
Passenger Entertainment System Controller-Audio (PESC-A)
224a
Radio Frequency
To Area Distribution Box (ADB)

Fig. 5a

QAM Audio

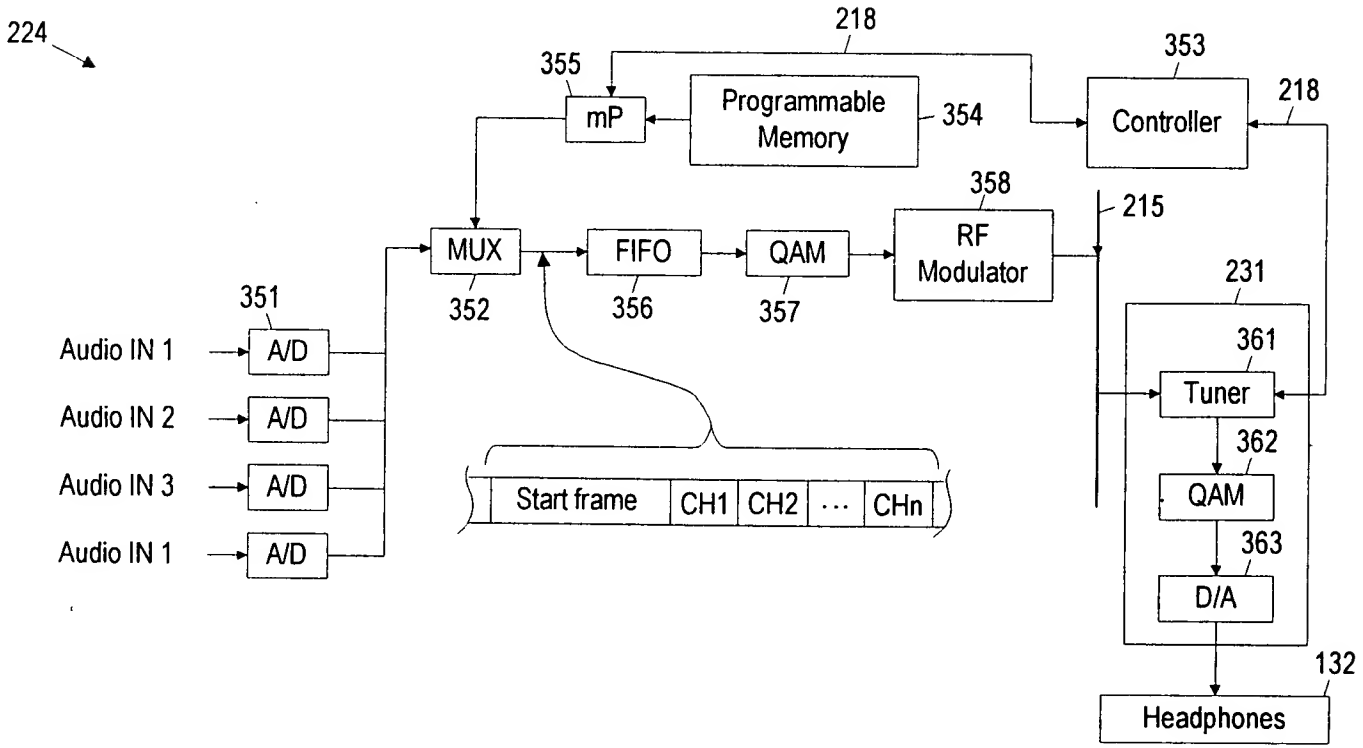


Fig. 6

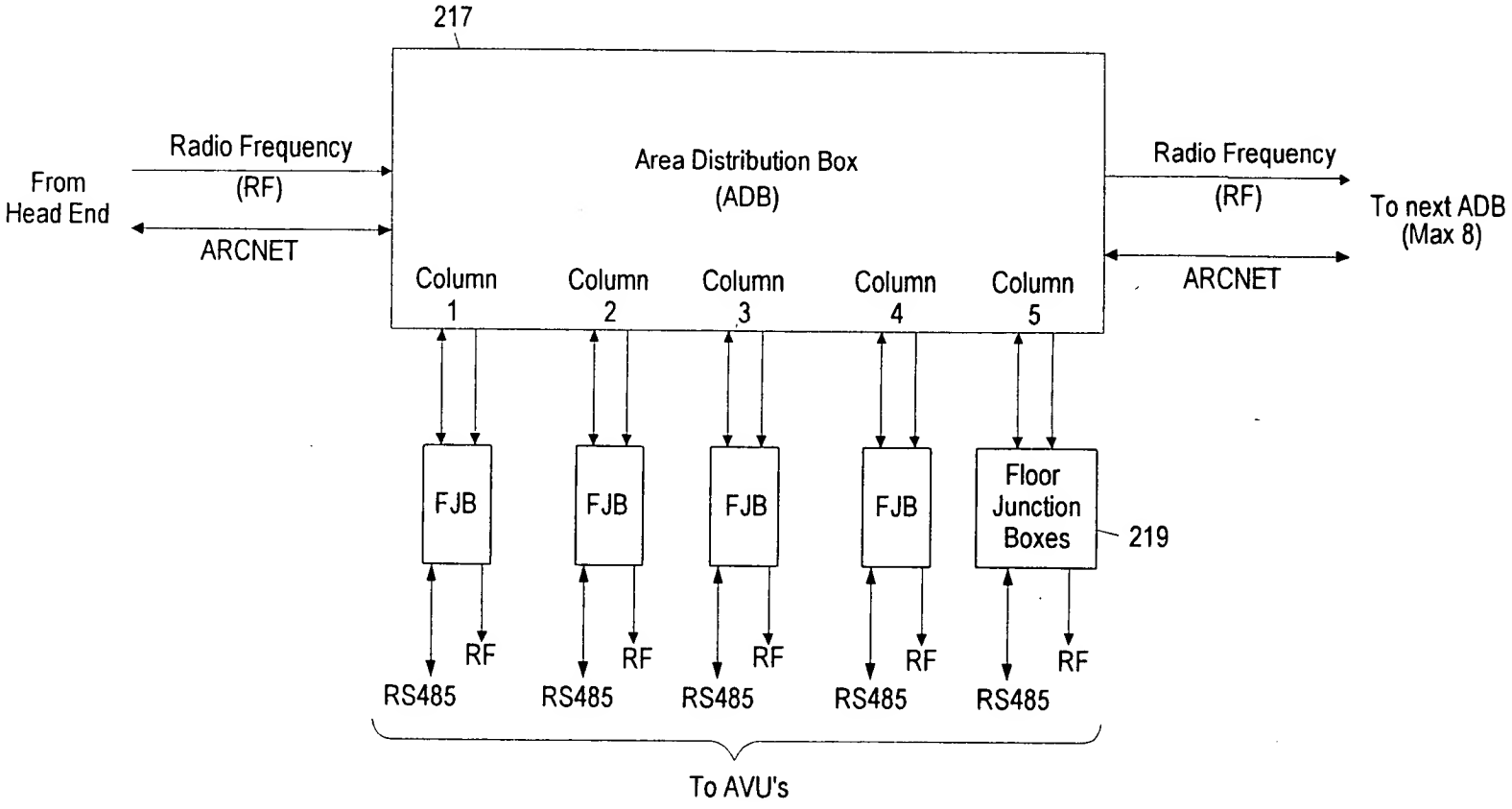
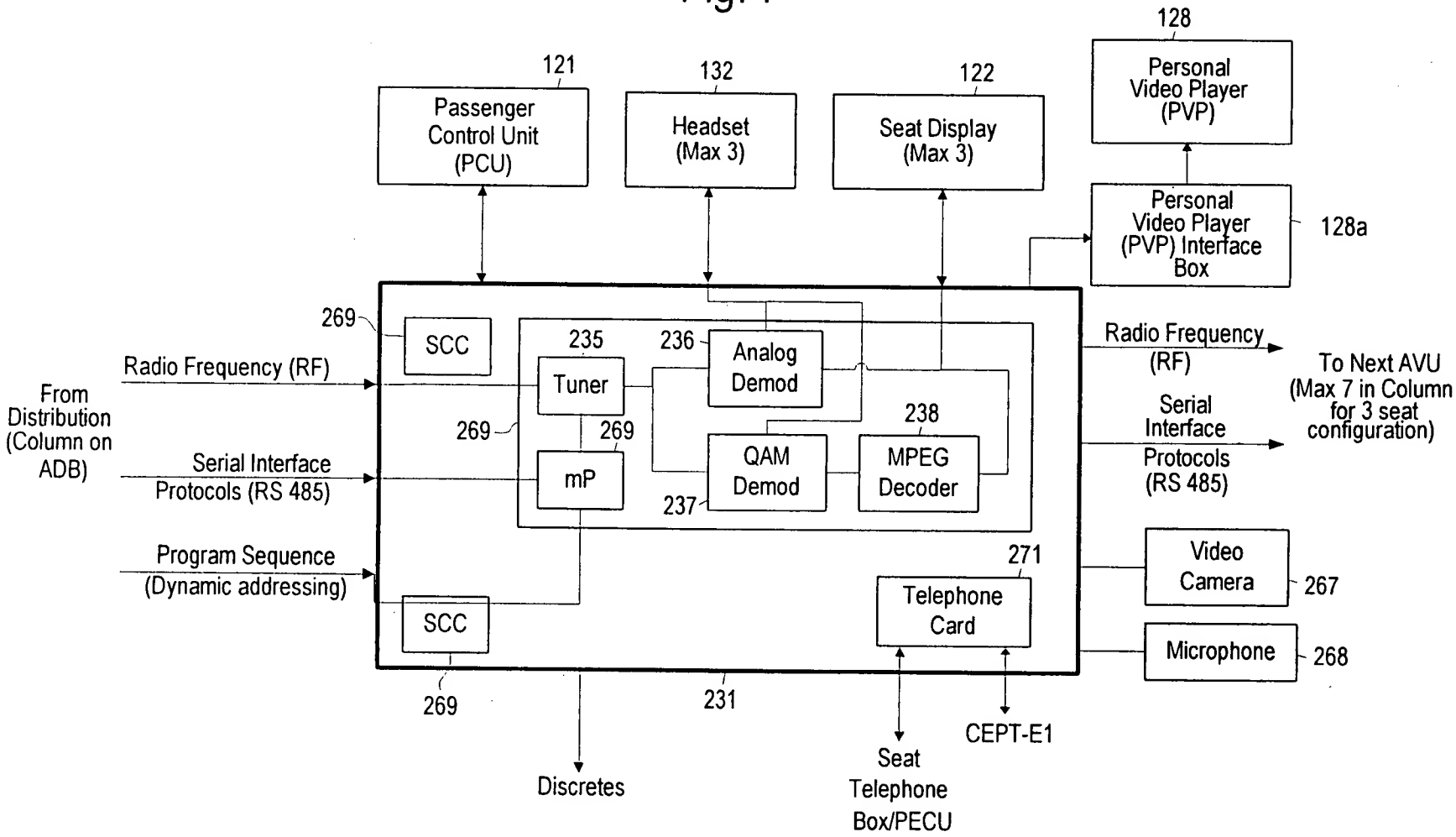

217
Area Distribution Box
(ADB)
From
Head End
Radio Frequency
(RF)
ARCNET
Radio Frequency
(RF)
ARCNET
To next ADB
(Max 8)
Column
1
Column
2
Column
3
Column
4
Column
5
FJB
FJB
FJB
FJB
Floor
Junction
Boxes
219
RF
RS485
To AVU's

Fig. 7


128
Personal Video Player (PVP)
121
Passenger Control Unit (PCU)
132
Headset (Max 3)
122
Seat Display (Max 3)
Personal Video Player (PVP) Interface Box
128a
269
SCC
235
Tuner
236
Analog Demod
238
MPEG Decoder
QAM Demod
237
mP
Radio Frequency (RF)
From Distribution (Column on ADB)
Serial Interface Protocols (RS 485)
Program Sequence (Dynamic addressing)
Radio Frequency (RF)
To Next AVU (Max 7 in Column for 3 seat configuration)
Serial Interface Protocols (RS 485)
271
Telephone Card
Video Camera
267
Microphone
268
231
CEPT-E1
Discretes
Seat Telephone Box/PECU

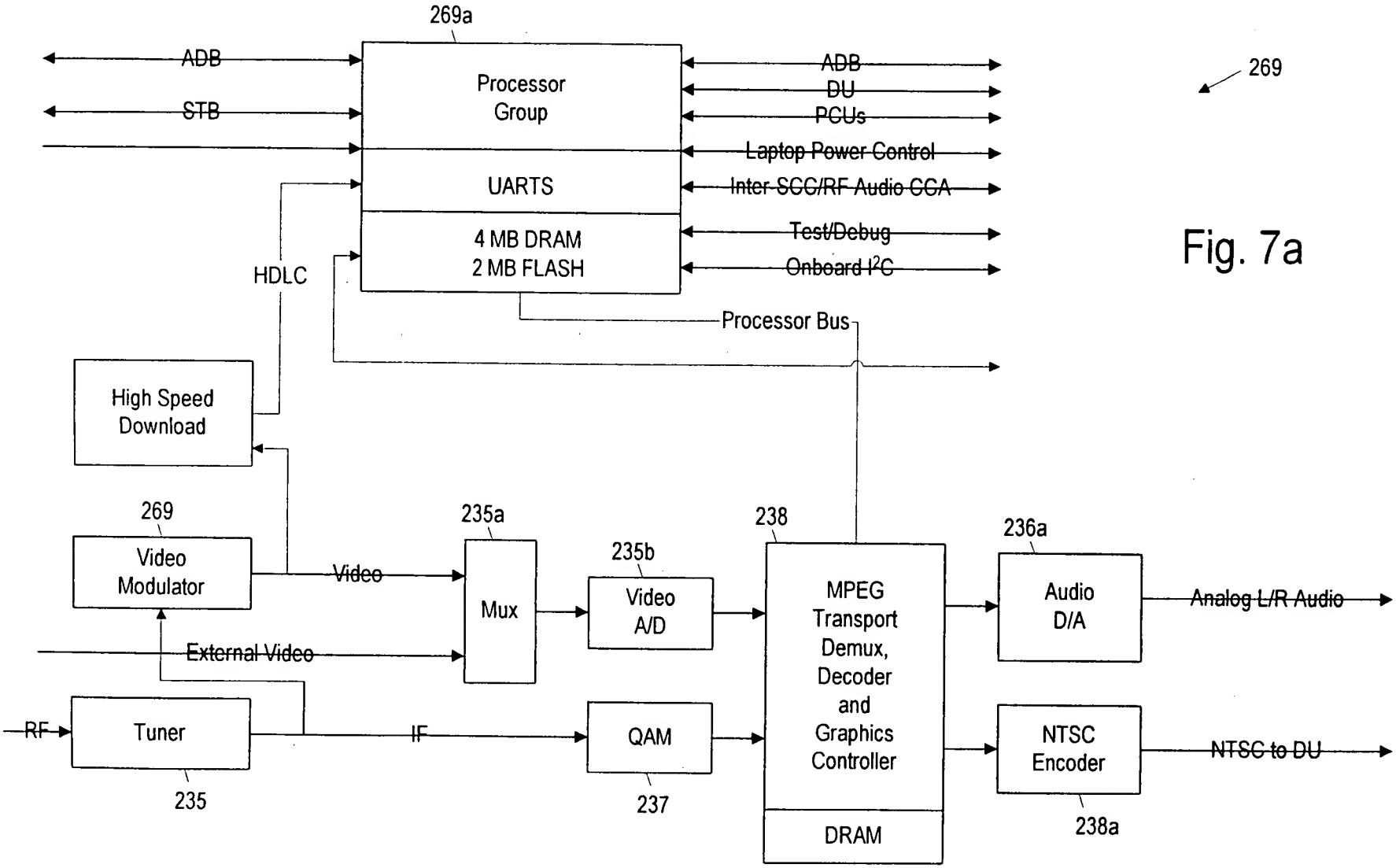

269a
ADB
STB
Processor Group
UARTS
4 MB DRAM
2 MB FLASH
ADB
DU
PCUs
Laptop Power Control
Inter-SCC/RF Audio CCA
Test/Debug
Onboard I2C
HDLC
Processor Bus
269
High Speed Download
269
Video Modulator
Video
235a
Mux
External Video
235b
Video A/D
238
MPEG Transport Demux, Decoder and Graphics Controller
DRAM
236a
Audio D/A
Analog L/R Audio
RF
Tuner
235
IF
QAM
237
NTSC Encoder
NTSC to DU
238a

Fig. 7a

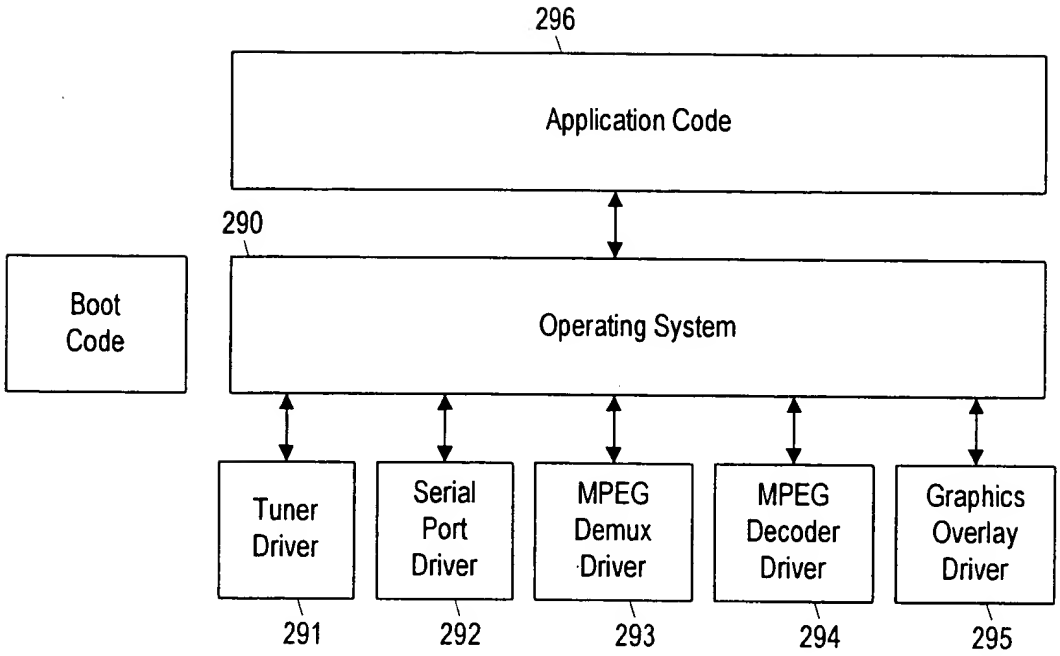

296
Application Code
290
Boot Code
Operating System
Tuner Driver
Serial Port Driver
MPEG Demux Driver
MPEG Decoder Driver
Graphics Overlay Driver
291
292
293
294
295

Fig. 7b

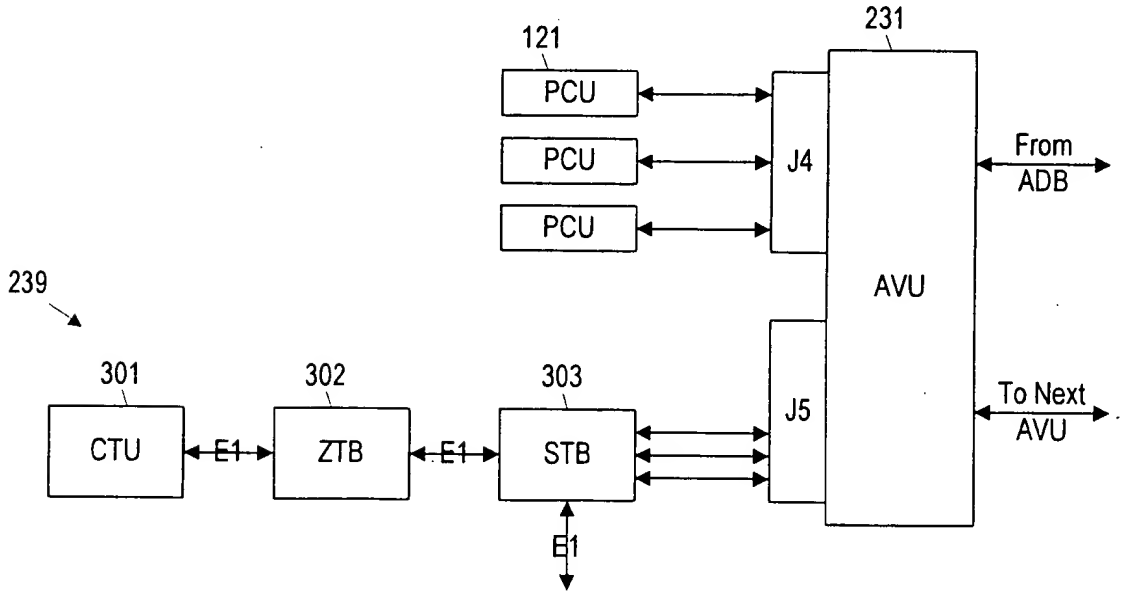

121
231
PCU
PCU
PCU
J4
From ADB
AVU
239
301
302
303
CTU
E1
ZTB
E1
STB
J5
To Next AVU
E1

Fig. 7c

Fig. 7d

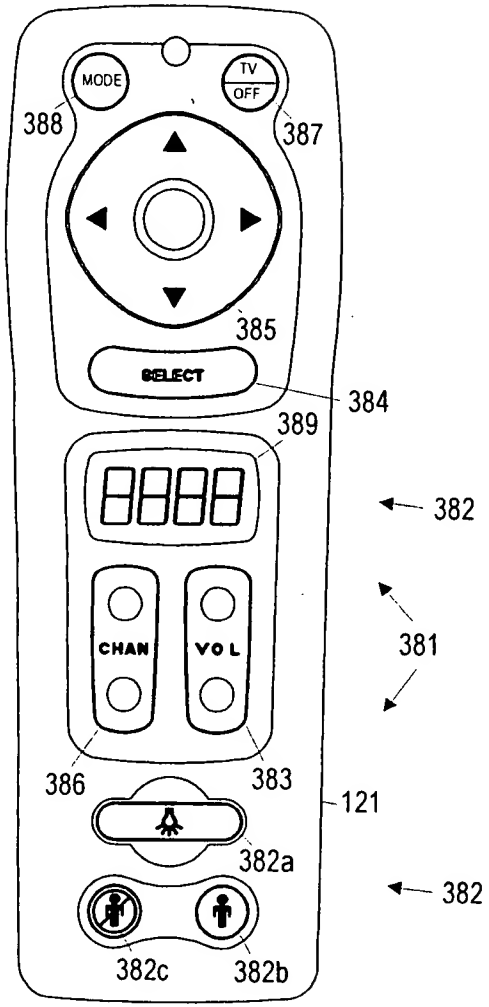

MODE
TV OFF
388
387
385
SELECT
384
389
382
381
CHAN
VOL
386
383
121
382a
382
382c
382b

Fig. 6a

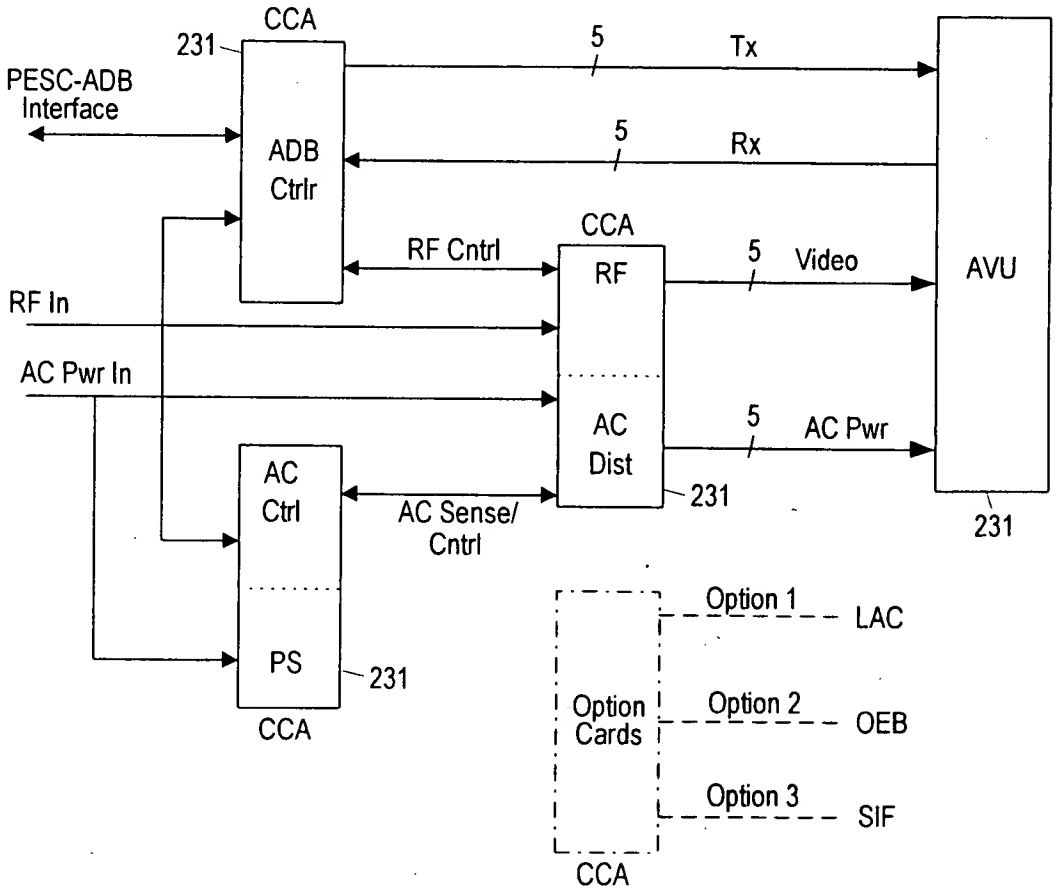

CCA
231
PESC-ADB Interface
ADB Ctrlr
5
Tx
5
Rx
AVU
231
CCA
RF Cntrl
RF
5
Video
RF In
AC Pwr In
AC Dist
5
AC Pwr
231
AC Ctrl
AC Sense/ Cntrl
PS
231
CCA
Option Cards
Option 1
LAC
Option 2
OEB
Option 3
SIF
CCA

Fig. 8

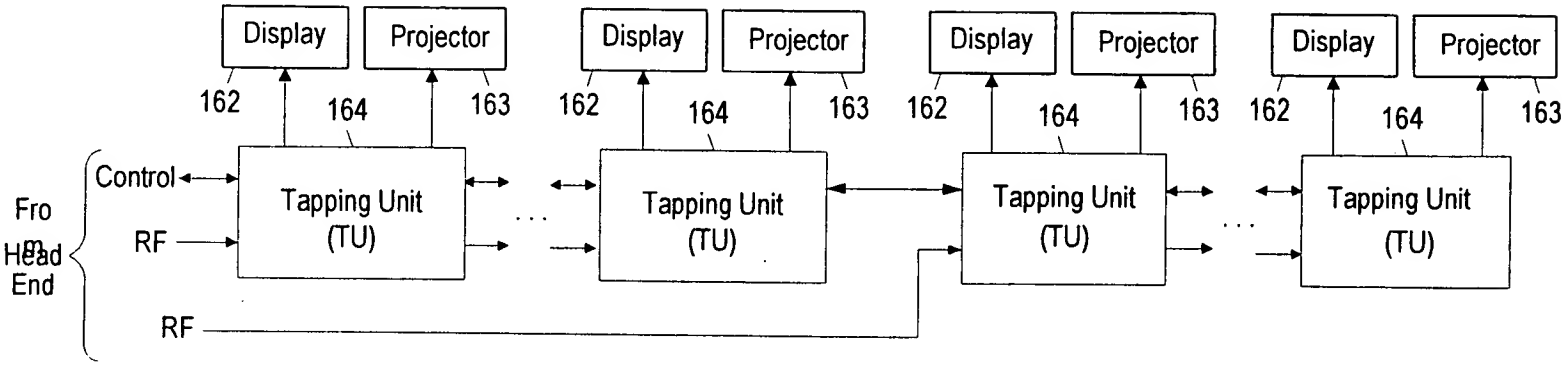


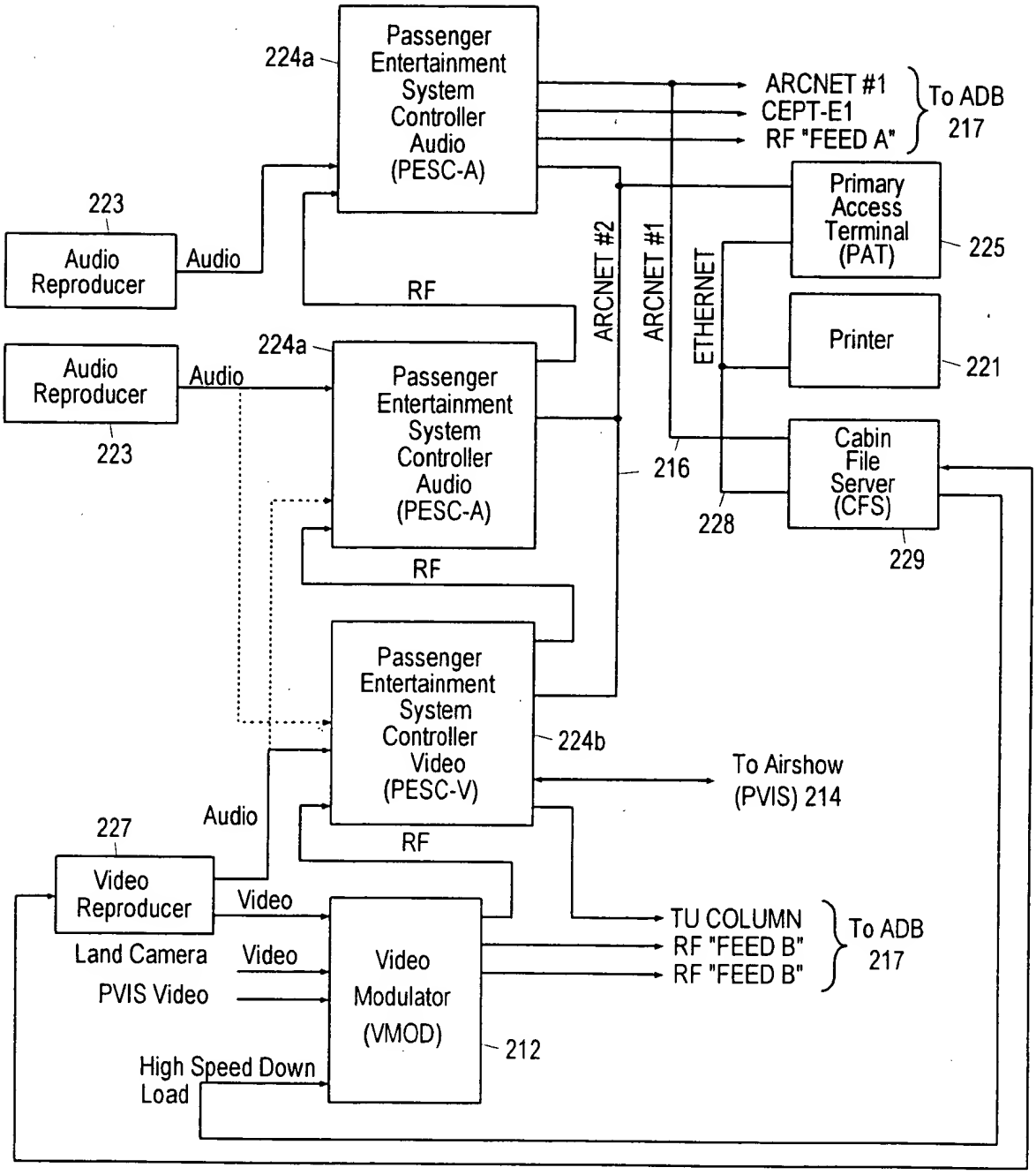
Fig. 9

Video Announcement Destination	Video Announcement Video	Video Announcement Audio
Passenger Seat	SDU	Headphones
Cabin	Overhead Displays	Cabin Audio Speakers
Passenger Seat and Cabin	SDU and Overhead Display	Headphones and Cabin Audio Speakers

Fig. 10

CFS	0 – 1
PAT	0 – 1
Printer	0 – 1
PESC-A	0 – 2
PESC-V	0 – 1
VMOD	1 – 2
TU	0 - 32 (2 columns 16 TUs per column)
DU	0 - 96 (3 per TU)
ADB	1 - 8
ADB Local Area Controller (ALAC)	0 - 5 (1 per LAC on 747-400)
AVU*	1 - 7 (three-wide per ADB seat column) 1- 8 (two-wide per ADB seat column)
SDU (seats)*	3 maximum per AVU
PCU (seats)*	3 maximum per AVU
OEB	0 - 30 / ADB overhead column (up to 3 columns per ADB)
FDB	0 - 40

Fig. 11


Passenger Entertainment System Controller Audio (PESC-A)
224a
ARCNET #1
CEPT-E1
RF "FEED A"
To ADB 217
Primary Access Terminal (PAT)
225
Printer
221
Cabin File Server (CFS)
229
228
216
ARCNET #2
ARCNET #1
ETHERNET
223
Audio Reproducer
Audio
RF
Passenger Entertainment System Controller Audio (PESC-A)
224a
Passenger Entertainment System Controller Video (PESC-V)
224b
To Airshow (PVIS) 214
227
Video Reproducer
Video
Land Camera
PVIS Video
Video Modulator (VMOD)
212
TU COLUMN
RF "FEED B"
RF "FEED B"
To ADB 217
High Speed Down Load

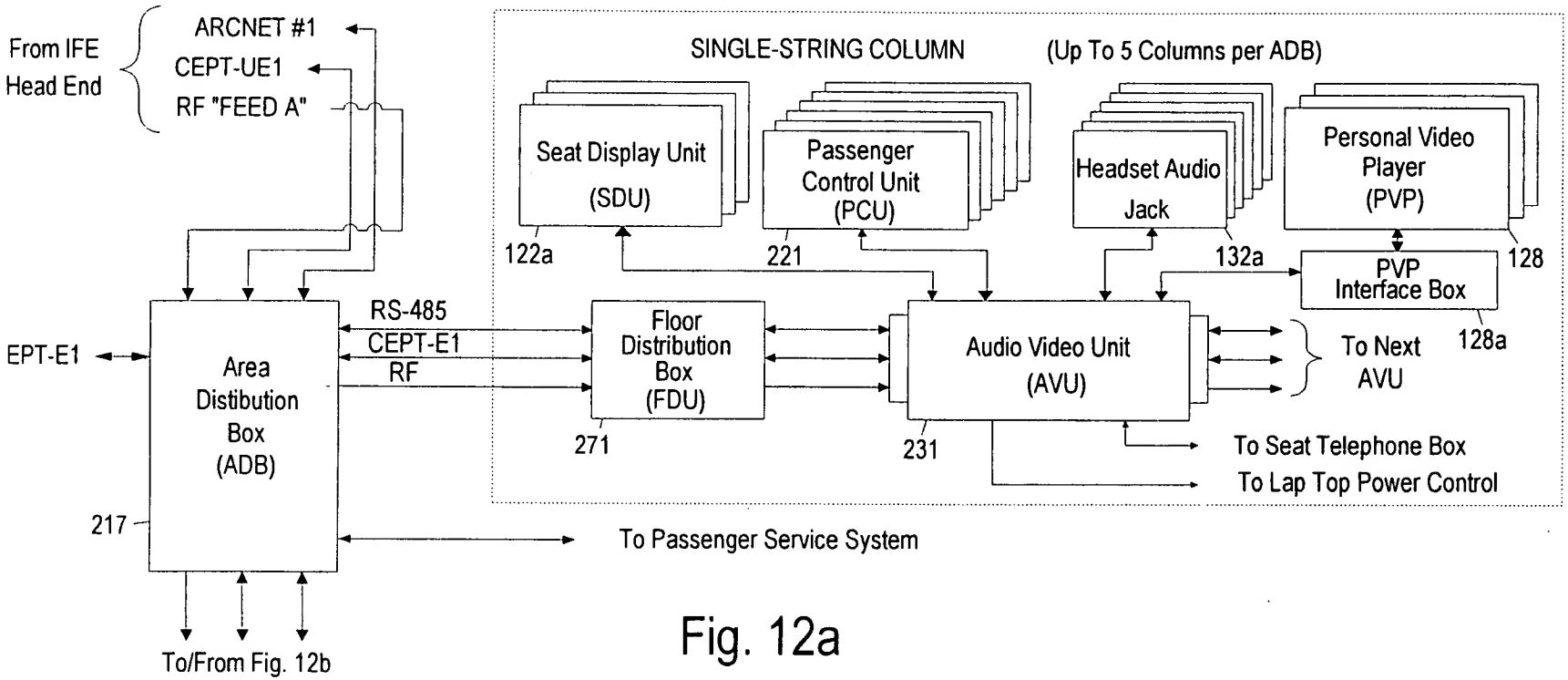
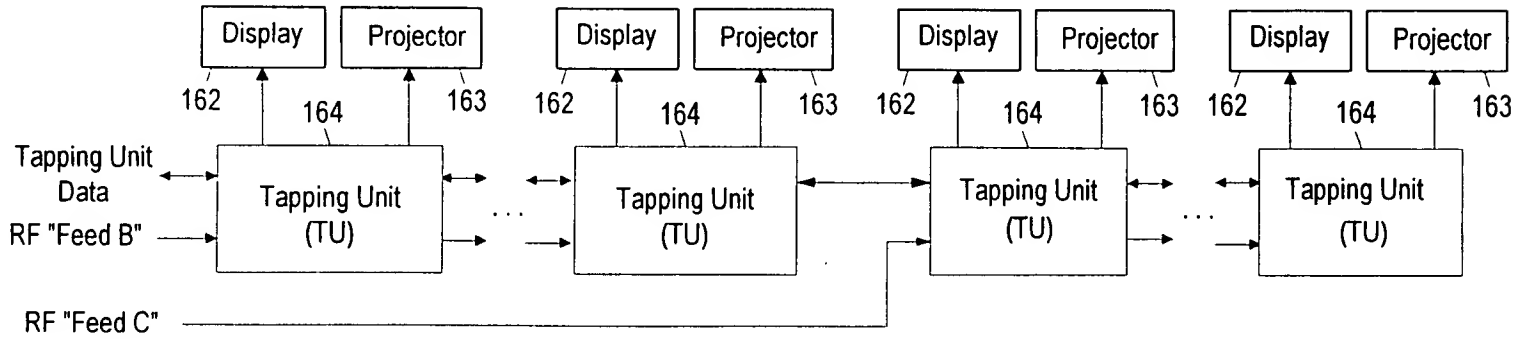


Fig. 12a

Fig. 12c



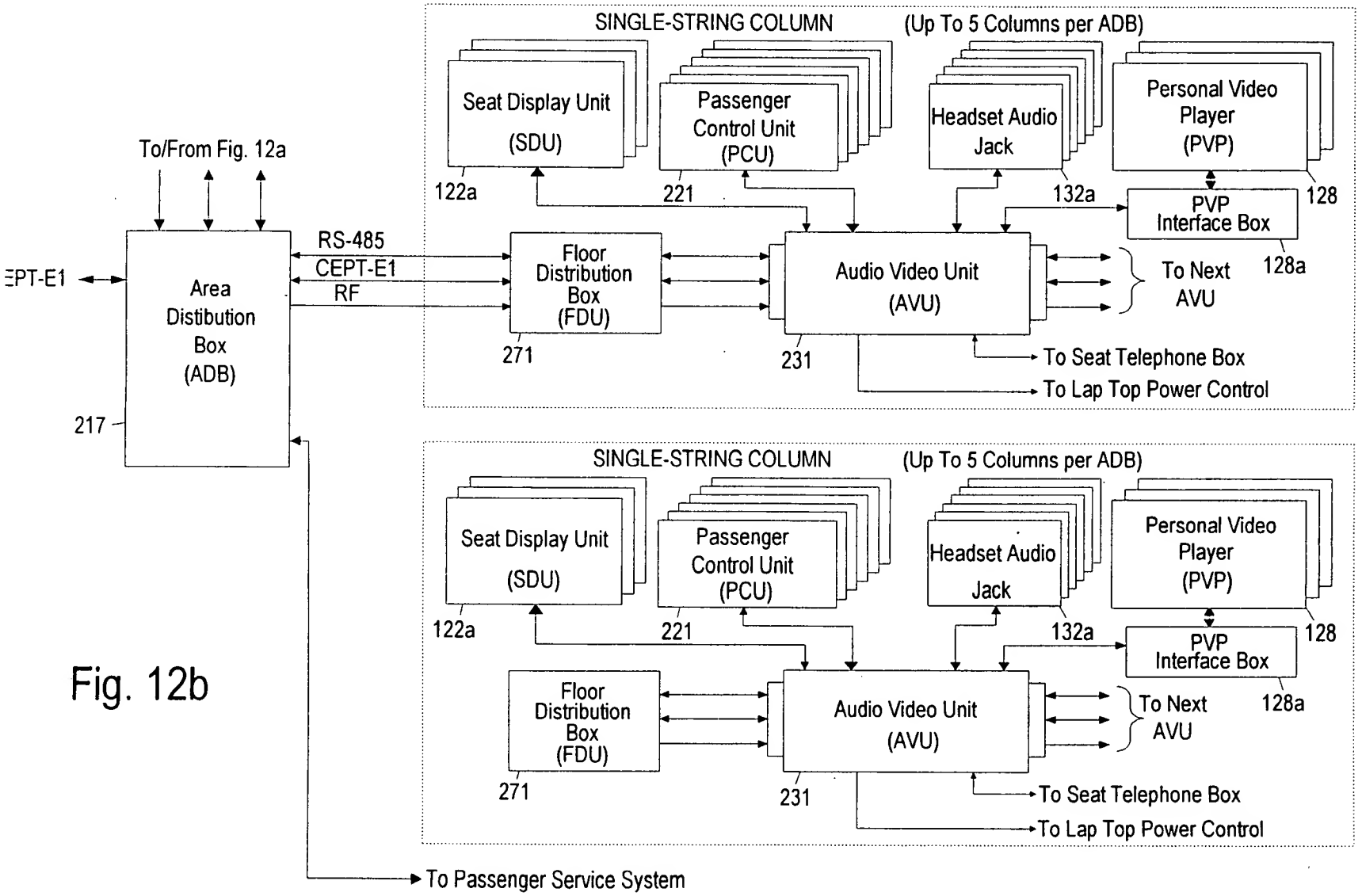

SINGLE-STRING COLUMN
(Up To 5 Columns per ADB)
Seat Display Unit (SDU)
Passenger Control Unit (PCU)
Headset Audio Jack
Personal Video Player (PVP)
122a
221
132a
128
PVP Interface Box
128a
To/From Fig. 12a
RS-485
CEPT-E1
RF
EPT-E1
Area Distibution Box (ADB)
217
Floor Distribution Box (FDU)
271
Audio Video Unit (AVU)
231
To Next AVU
To Seat Telephone Box
To Lap Top Power Control
SINGLE-STRING COLUMN
(Up To 5 Columns per ADB)
Seat Display Unit (SDU)
Passenger Control Unit (PCU)
Headset Audio Jack
Personal Video Player (PVP)
122a
221
132a
128
PVP Interface Box
128a
Floor Distribution Box (FDU)
271
Audio Video Unit (AVU)
231
To Next AVU
To Seat Telephone Box
To Lap Top Power Control
To Passenger Service System

Fig. 12b

Fig. 14a

	PAT	PRINTER	CFS	VR	PVIS	VMOD	AR	PESC-A Primary	PESC-A Second.	PESC-V	TU	DU	ADB	ALAC	FJB	AVU	SDU DUS	SDU UEB	SDU DUC	PCU
PAT																				
Printer																				
CFS	X	X		X			X	X												
VR																				
PVIS																				
VMOD																				
VR																				
PESC-A Primary			X						X	X			X	X						
PESC-A Secondary								X		X										
PESC-V	X							X			X									
TU																				
DU												X								
ADB			X					X					X	X		X				
ALAC			X					X					X							
FJB																				
AVU																	X	X	X	X
SDU DUS																				
SDU UEB																				
SDU DUC																				
PCU																				

Fig. 13

Game Order, Payment, and Download	10 seats/15 min
Movie Order Payment and Delivery	15 seats/min
Passenger Service Requests	15 seats/min

Fig. 14

Item	PESC	ADB	AVU	DU	CFS	PAT	VR	Printer	PCU
BIT Testing	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min	1 min
BITE Testing	3 min	3 min	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Definitions:

BIT Testing Duration = Amount of time required for LRU to complete comm. tests and report on errors

BITE Testing Duration = Amount of time required for LRU to complete its internal BITE testing

Fig. 16

Item	Requirement
Source Impedance,	Less than 50 ohms
Load Impedance	600 ohms nominal (unbalanced)
Output Level	775 mV rms at 1 KHz
Audio Bandwidth	50 Hz--15 KHz

Fig. 15

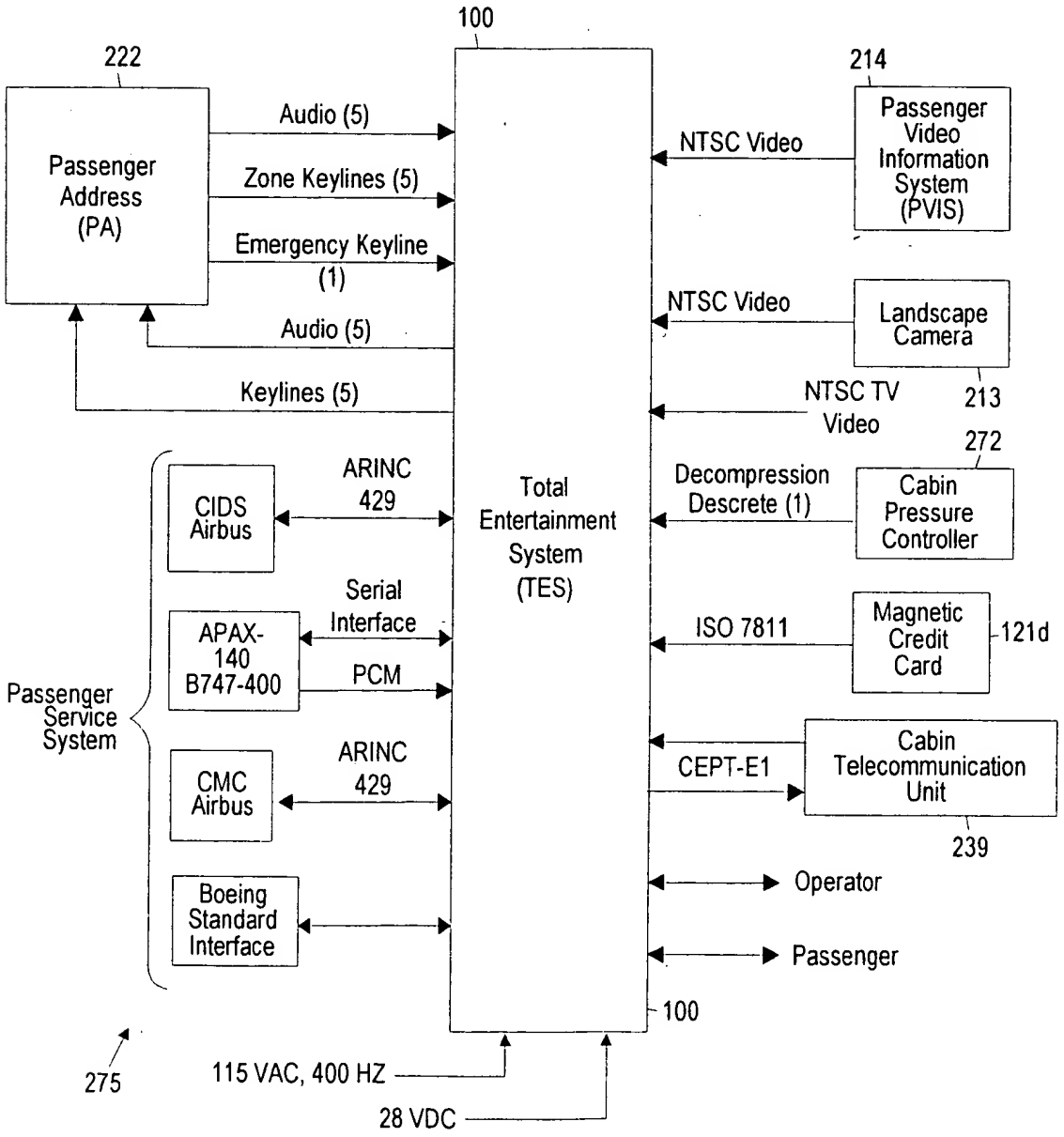

100
222
214
Passenger Address (PA)
Audio (5)
Zone Keylines (5)
Emergency Keyline (1)
Audio (5)
Keylines (5)
NTSC Video
Passenger Video Information System (PVIS)
NTSC Video
Landscape Camera
213
NTSC TV Video
272
Decompression Descrete (1)
Cabin Pressure Controller
ISO 7811
Magnetic Credit Card
121d
CEPT-E1
Cabin Telecommunication Unit
239
Operator
Passenger
100
Total Entertainment System (TES)
Passenger Service System
CIDS Airbus
ARINC 429
APAX-140 B747-400
Serial Interface
PCM
CMC Airbus
ARINC 429
Boeing Standard Interface
275
115 VAC, 400 HZ
28 VDC

Fig. 16a

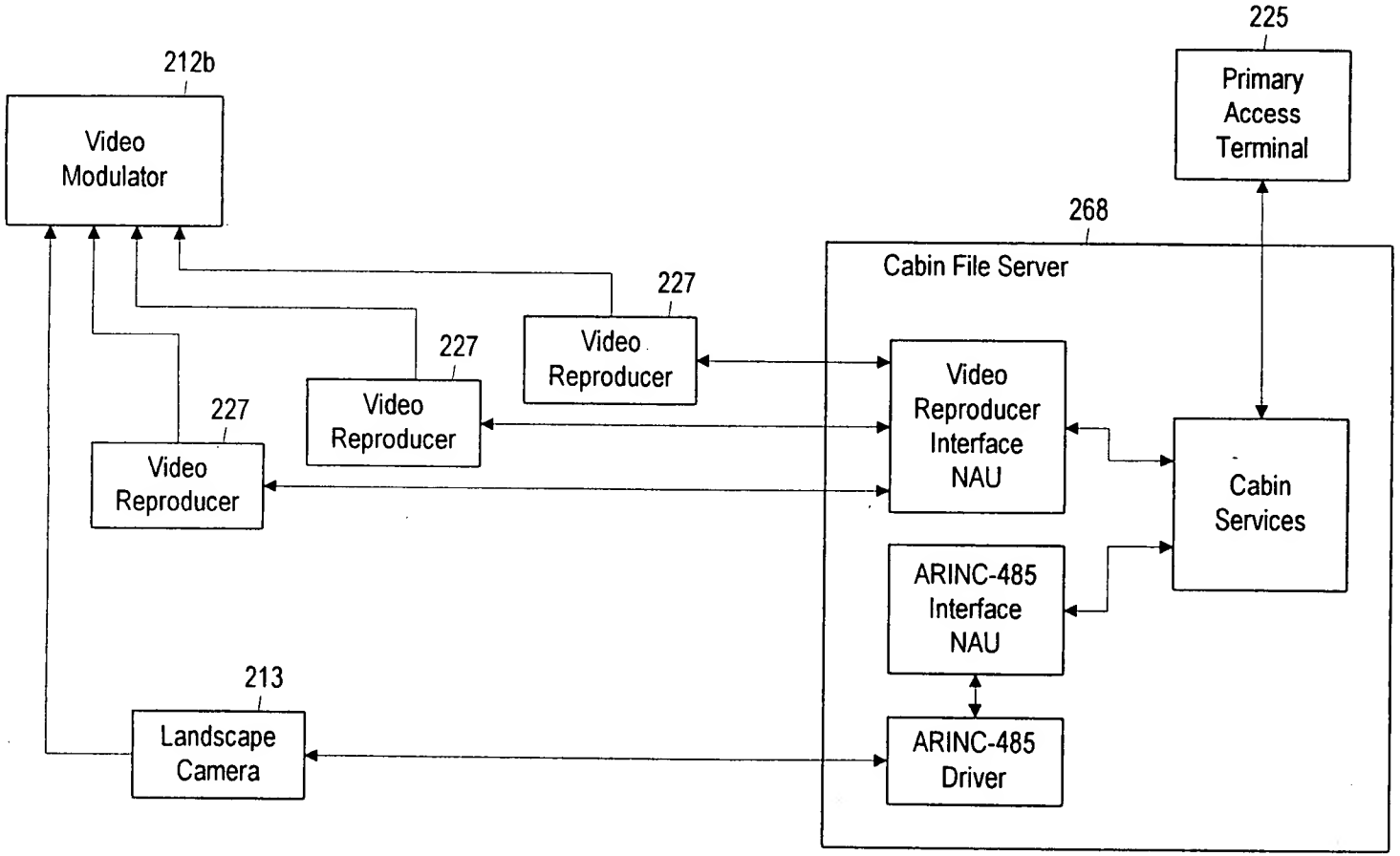
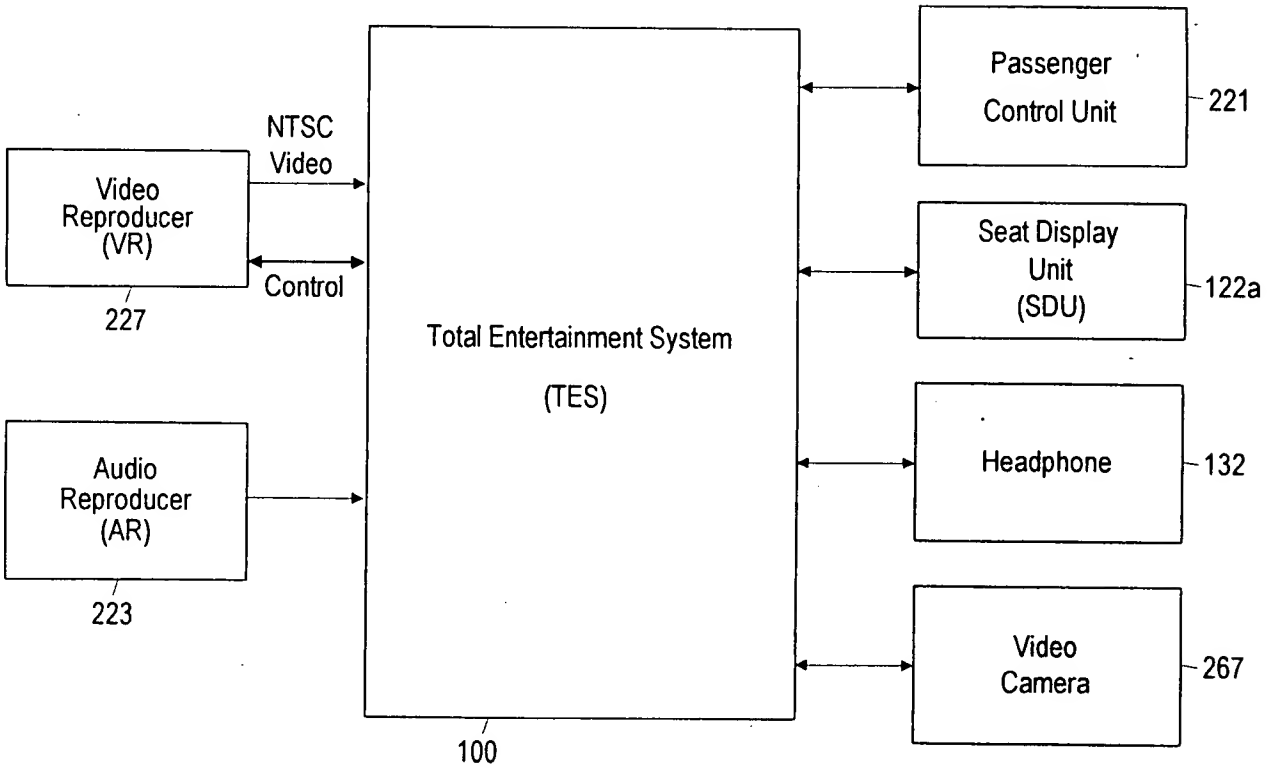

225
Primary Access Terminal
212b
Video Modulator
268
Cabin File Server
227
Video Reproducer
227
Video Reproducer
227
Video Reproducer
Video Reproducer Interface NAU
Cabin Services
ARINC-485 Interface NAU
213
Landscape Camera
ARINC-485 Driver

Fig. 17


Video Reproducer (VR)
227
NTSC Video
Control
Audio Reproducer (AR)
223
Total Entertainment System (TES)
100
Passenger Control Unit
221
Seat Display Unit (SDU)
122a
Headphone
132
Video Camera
267

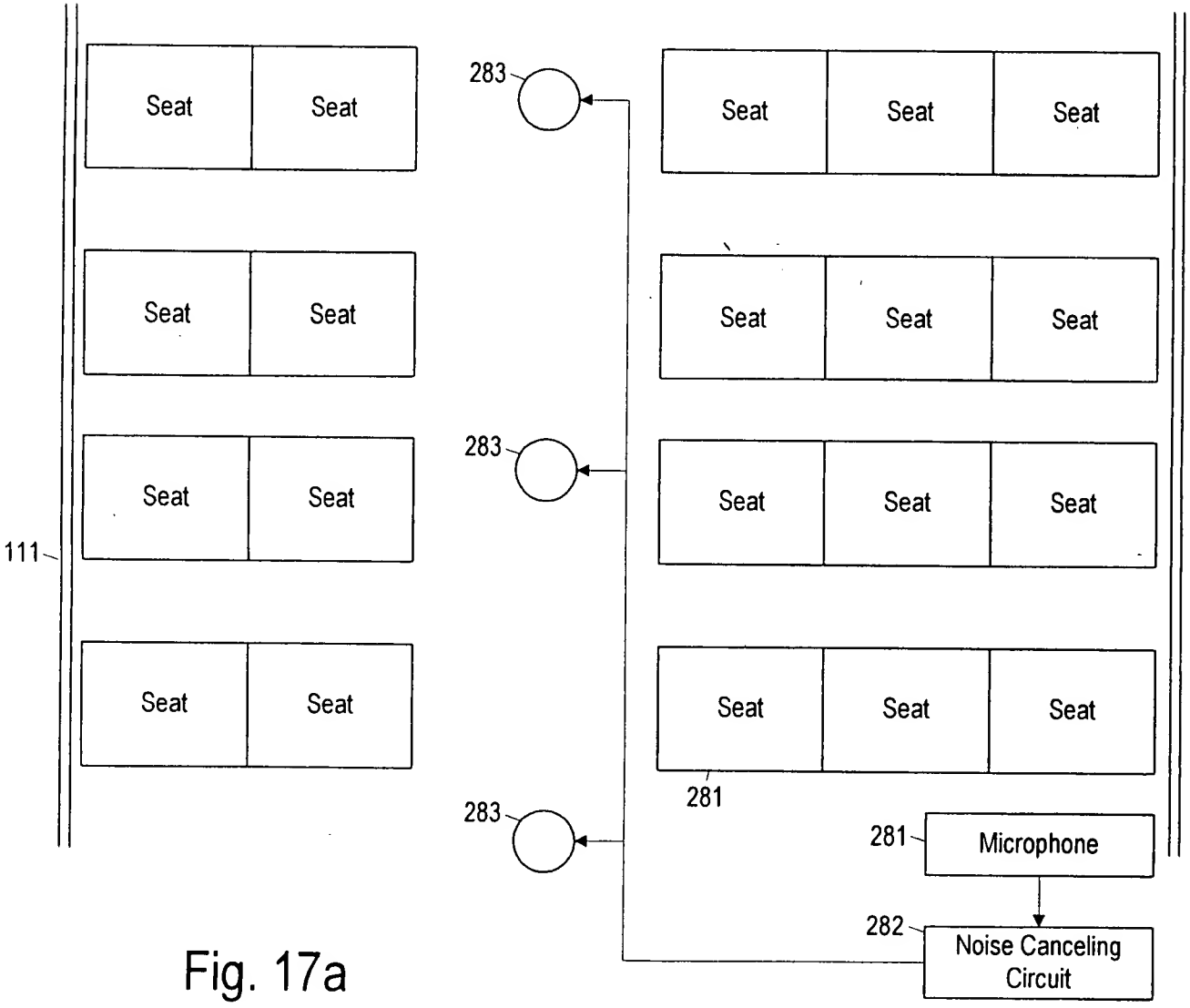

Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
Seat
283
283
283
111
281
281
Microphone
282
Noise Canceling Circuit
280

Fig. 17a

Fig. 18

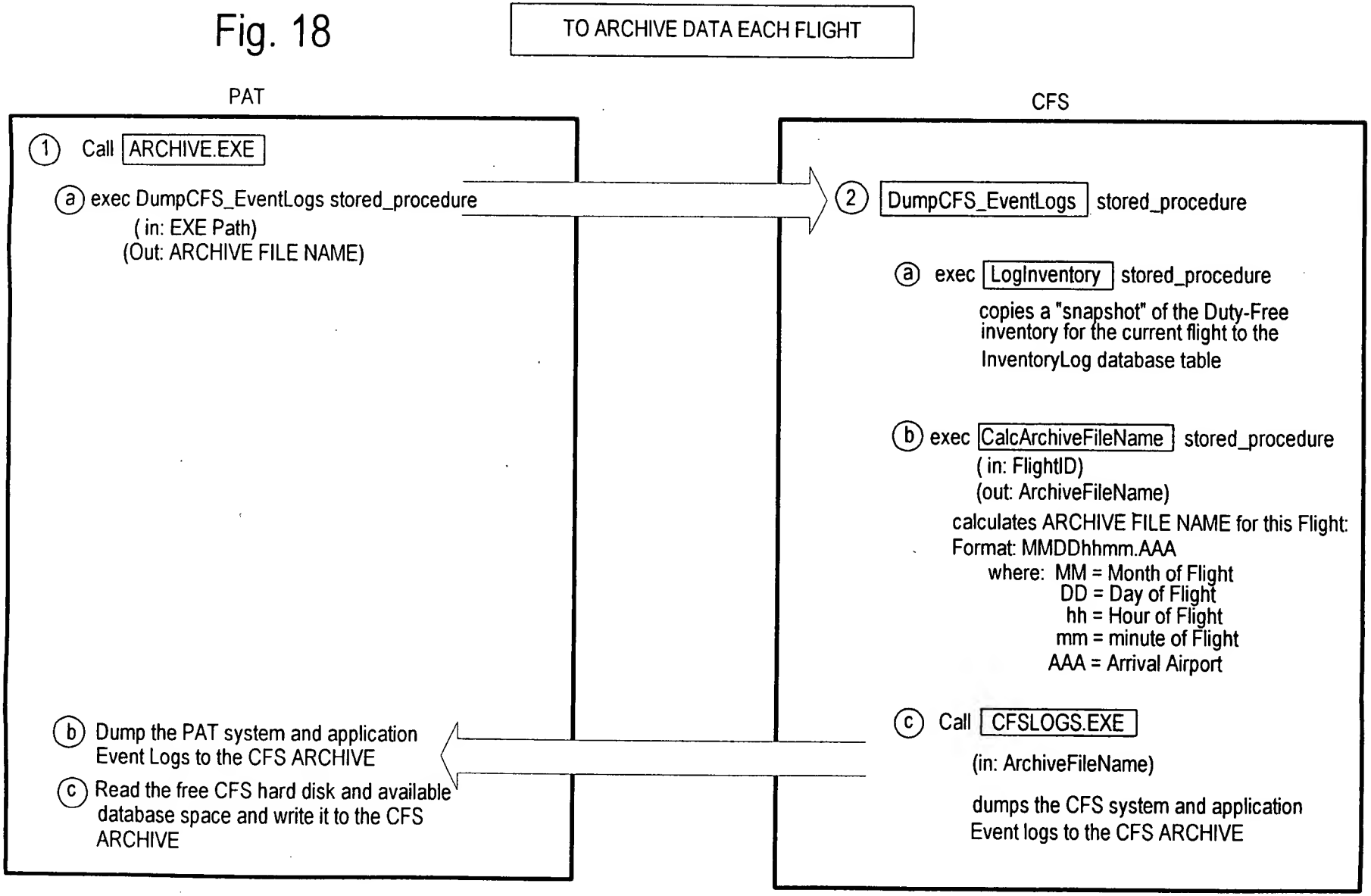

TO ARCHIVE DATA EACH FLIGHT
PAT
CFS
1 Call ARCHIVE.EXE
a exec DumpCFS_EventLogs stored_procedure
(in: EXE Path)
(Out: ARCHIVE FILE NAME)
2 DumpCFS_EventLogs stored_procedure
a exec LogInventory stored_procedure
copies a "snapshot" of the Duty-Free inventory for the current flight to the InventoryLog database table
b exec CalcArchiveFileName stored_procedure
(in: FlightID)
(out: ArchiveFileName)
calculates ARCHIVE FILE NAME for this Flight:
Format: MMDDhhmm.AAA
where: MM = Month of Flight
DD = Day of Flight
hh = Hour of Flight
mm = minute of Flight
AAA = Arrival Airport
c Call CFSLOGS.EXE
(in: ArchiveFileName)
dumps the CFS system and application Event logs to the CFS ARCHIVE
b Dump the PAT system and application Event Logs to the CFS ARCHIVE
c Read the free CFS hard disk and available database space and write it to the CFS ARCHIVE

Fig. 19

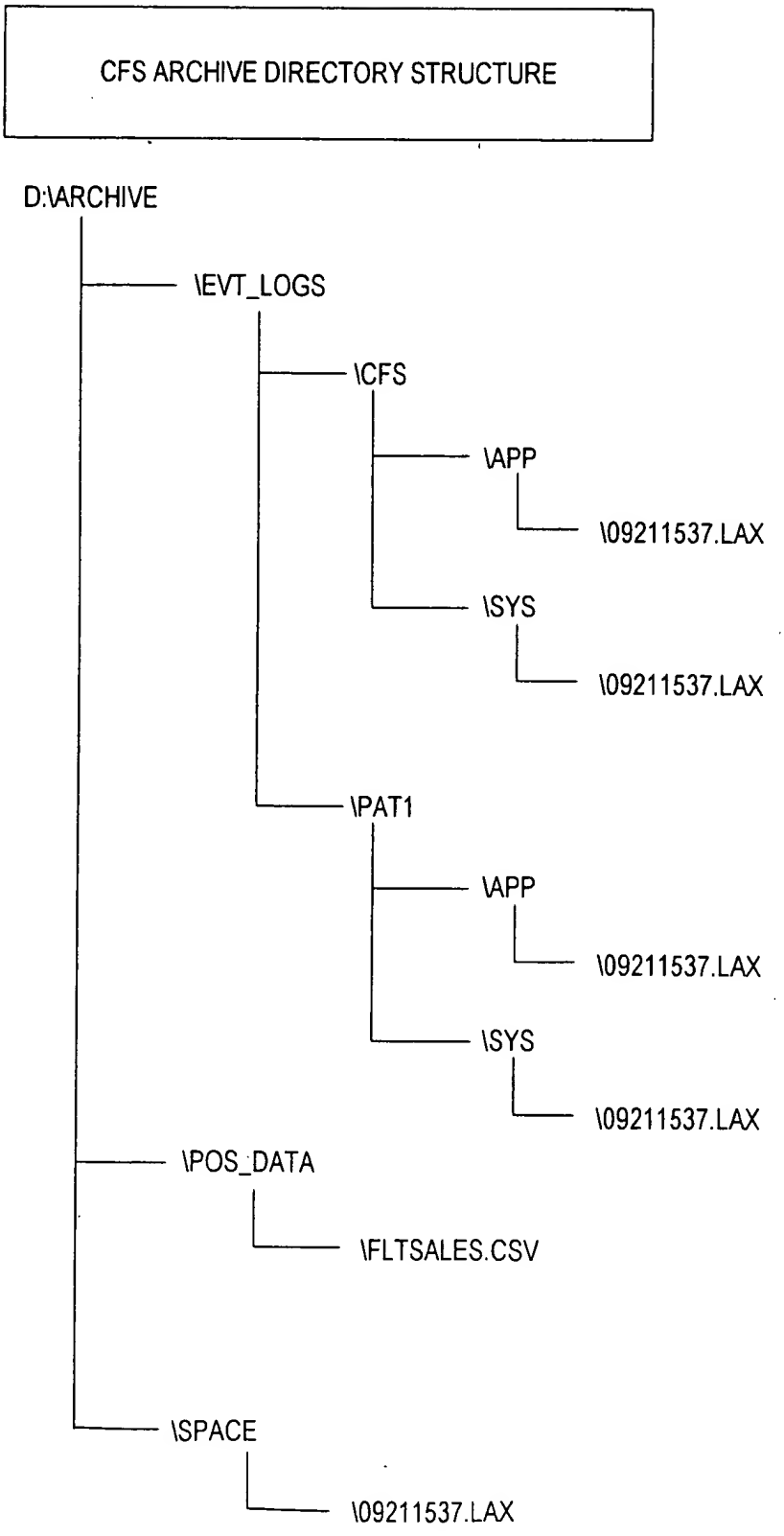
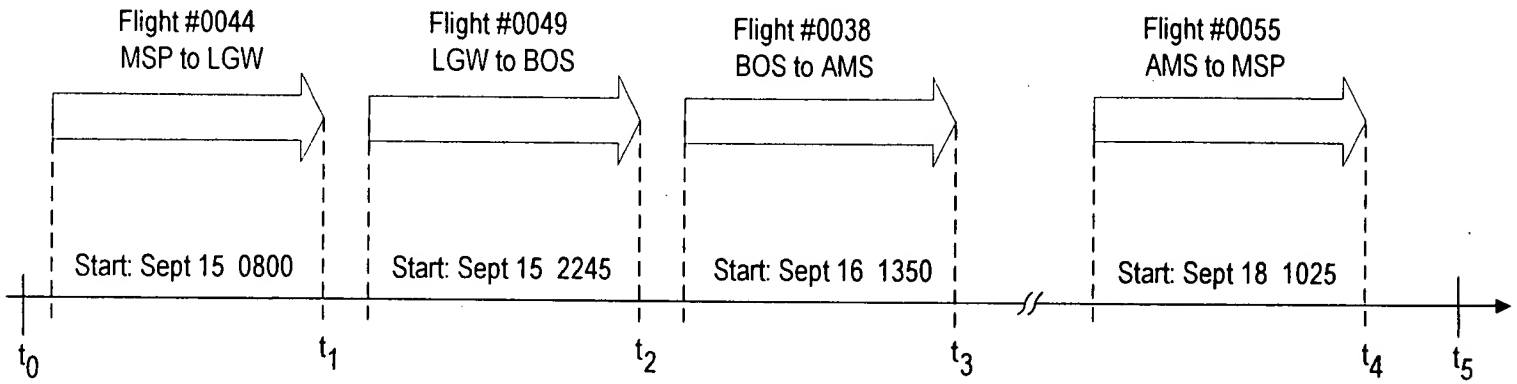

CFS ARCHIVE DIRECTORY STRUCTURE
D:\ARCHIVE
\EVT_LOGS
\CFS
\APP
\09211537.LAX
\SYS
\09211537.LAX
\PAT1
\APP
\09211537.LAX
\SYS
\09211537.LAX
\POS_DATA
\FLTSALES.CSV
\SPACE
\09211537.LAX

Fig. 20

EXAMPLE SCENARIO

At the "end" of each flight, the four event logs and the SQL Errorlog are "archived" on the CFS hard disk. When the "Offload" is performed, the FLTSALES.CSV file containing the point-of-sale data is generated and then "zipped" together with the corresponding "archived" logs for each flight that has not been previously "Offloaded".



t_1 = Archive Files: 09150800.LGW
t_2 = Archive Files: 09152245.BOS
t_3 = Archive Files: 09161350.AMS
t_4 = Archive Files: 09181025.MSP

t_5 = "Data Offload"
Zip File 1: 0044LGW.258
Zip File 2: 0049BOS.258
Zip File 3: 0038AMS.259
Zip File 4: 0055MSP.261

A 294,952 byte event log zips down to 18,658 bytes. A flight with 1500 orders (600 cash, 900 credit card) generates an 184,842 byte data file, which zips down to 2,373 bytes. Allowing 80 Kb for the four event logs [note: they should actually be much less since they are cleared out each flight] and 5 Kb for the data file, this means that 16 flights could be "Offloaded" on a single diskette. It took 10 seconds to "archive" the four event logs and 1 min 10 seconds to "Offload" to the hard drive.

Fig. 21

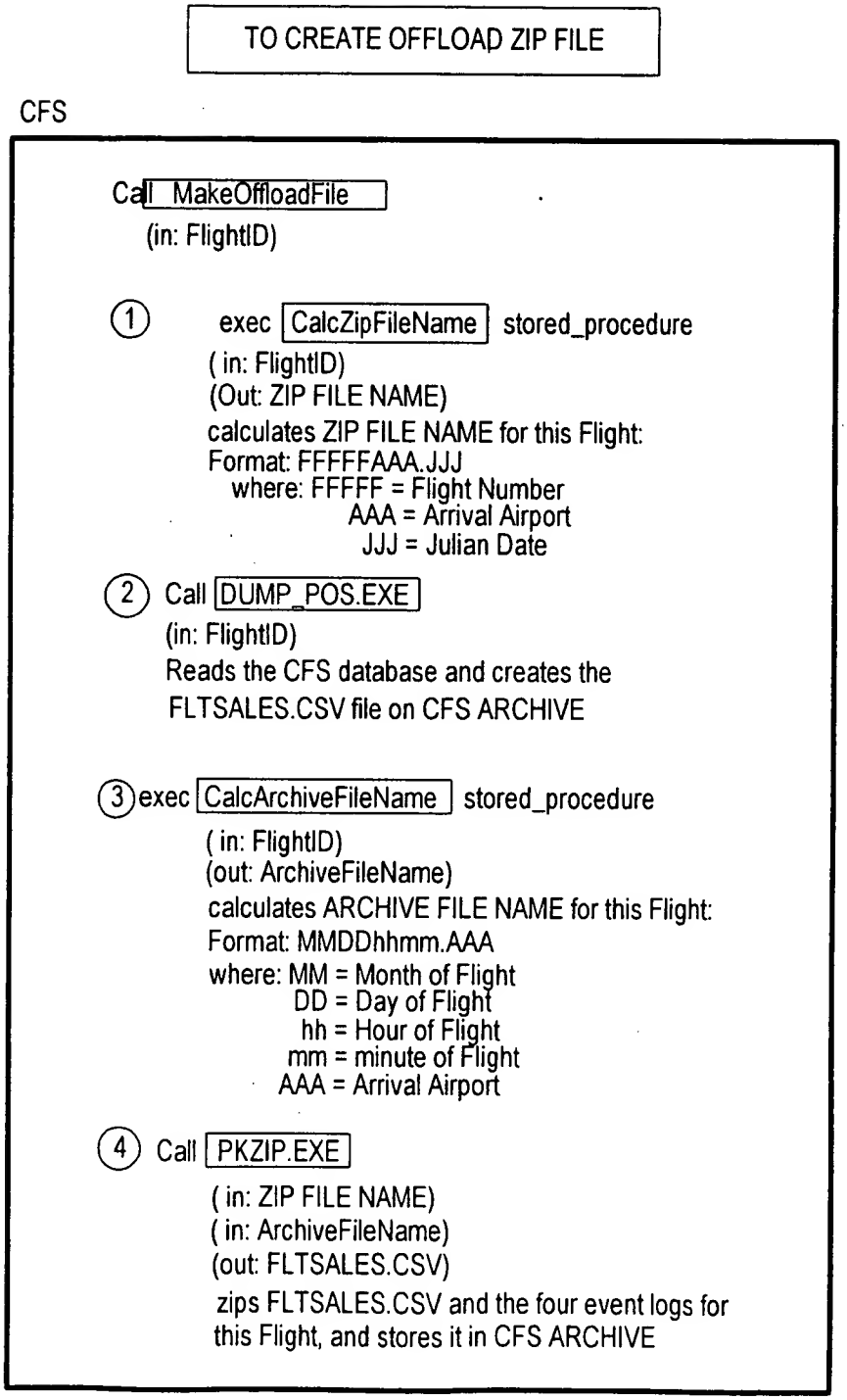

TO CREATE OFFLOAD ZIP FILE
CFS
Call MakeOffloadFile
(in: FlightID)
1 exec CalcZipFileName stored_procedure
(in: FlightID)
(Out: ZIP FILE NAME)
calculates ZIP FILE NAME for this Flight:
Format: FFFFFAAA.JJJ
where: FFFFF = Flight Number
AAA = Arrival Airport
JJJ = Julian Date
2 Call DUMP_POS.EXE
(in: FlightID)
Reads the CFS database and creates the
FLTSALES.CSV file on CFS ARCHIVE
3 exec CalcArchiveFileName stored_procedure
(in: FlightID)
(out: ArchiveFileName)
calculates ARCHIVE FILE NAME for this Flight:
Format: MMDDhhmm.AAA
where: MM = Month of Flight
DD = Day of Flight
hh = Hour of Flight
mm = minute of Flight
AAA = Arrival Airport
4 Call PKZIP.EXE
(in: ZIP FILE NAME)
(in: ArchiveFileName)
(out: FLTSALES.CSV)
zips FLTSALES.CSV and the four event logs for
this Flight, and stores it in CFS ARCHIVE

Fig. 22

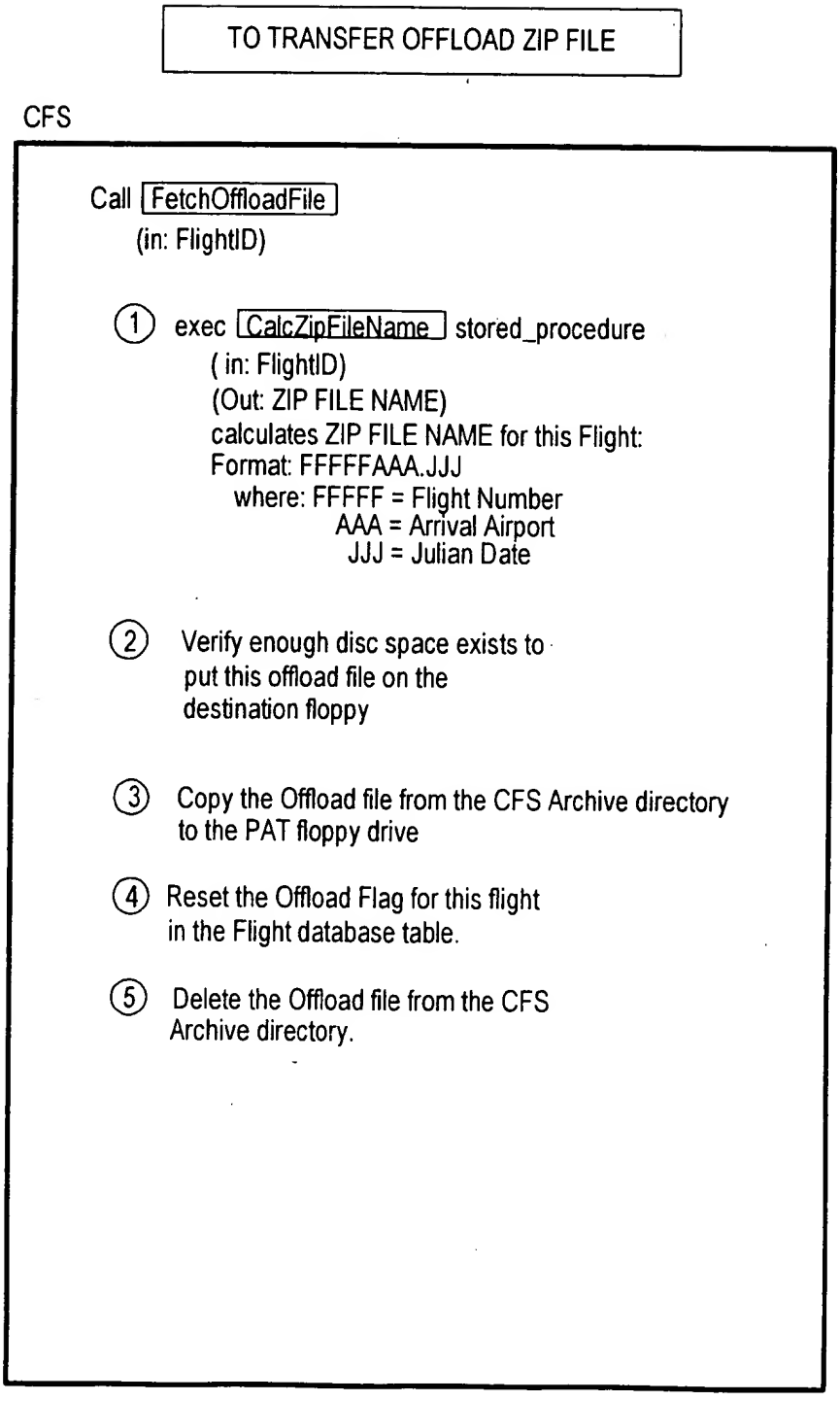

TO TRANSFER OFFLOAD ZIP FILE
CFS
Call FetchOffloadFile
(in: FlightID)
1 exec CalcZipFileName stored_procedure
(in: FlightID)
(Out: ZIP FILE NAME)
calculates ZIP FILE NAME for this Flight:
Format: FFFFFAAA.JJJ
where: FFFFF = Flight Number
AAA = Arrival Airport
JJJ = Julian Date
2 Verify enough disc space exists to put this offload file on the destination floppy
3 Copy the Offload file from the CFS Archive directory to the PAT floppy drive
4 Reset the Offload Flag for this flight in the Flight database table.
5 Delete the Offload file from the CFS Archive directory.

Fig. 23

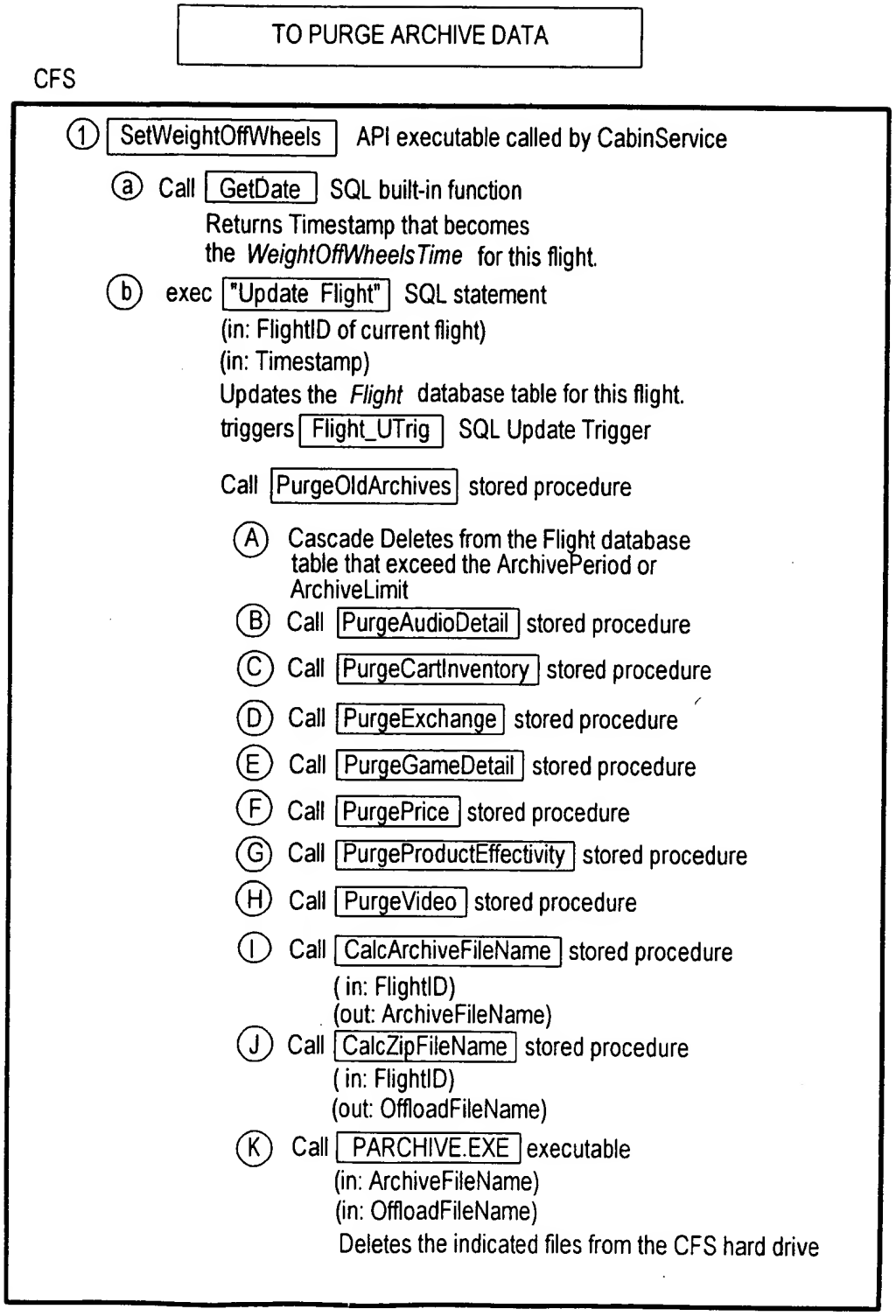

TO PURGE ARCHIVE DATA
CFS
1 SetWeightOffWheels API executable called by CabinService
a Call GetDate SQL built-in function
Returns Timestamp that becomes
the WeightOffWheelsTime for this flight.
b exec "Update Flight" SQL statement
(in: FlightID of current flight)
(in: Timestamp)
Updates the Flight database table for this flight.
triggers Flight_UTrig SQL Update Trigger
Call PurgeOldArchives stored procedure
A Cascade Deletes from the Flight database table that exceed the ArchivePeriod or ArchiveLimit
B Call PurgeAudioDetail stored procedure
C Call PurgeCartInventory stored procedure
D Call PurgeExchange stored procedure
E Call PurgeGameDetail stored procedure
F Call PurgePrice stored procedure
G Call PurgeProductEffectivity stored procedure
H Call PurgeVideo stored procedure
I Call CalcArchiveFileName stored procedure
(in: FlightID)
(out: ArchiveFileName)
J Call CalcZipFileName stored procedure
(in: FlightID)
(out: OffloadFileName)
K Call PARCHIVE.EXE executable
(in: ArchiveFileName)
(in: OffloadFileName)
Deletes the indicated files from the CFS hard drive

Fig. 24

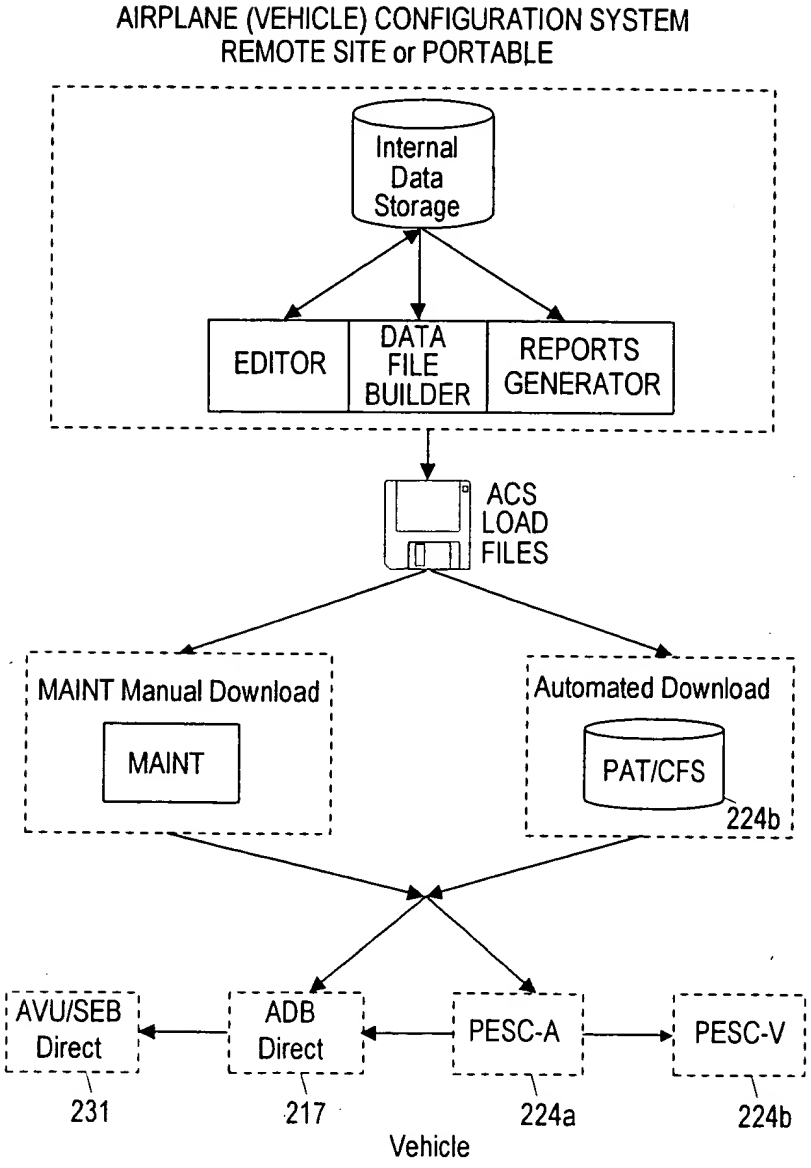

AIRPLANE (VEHICLE) CONFIGURATION SYSTEM
REMOTE SITE or PORTABLE
Internal Data Storage
EDITOR
DATA FILE BUILDER
REPORTS GENERATOR
ACS LOAD FILES
MAINT Manual Download
MAINT
Automated Download
PAT/CFS
224b
AVU/SEB Direct
ADB Direct
PESC-A
PESC-V
231
217
224a
224b
Vehicle

Fig. 25a

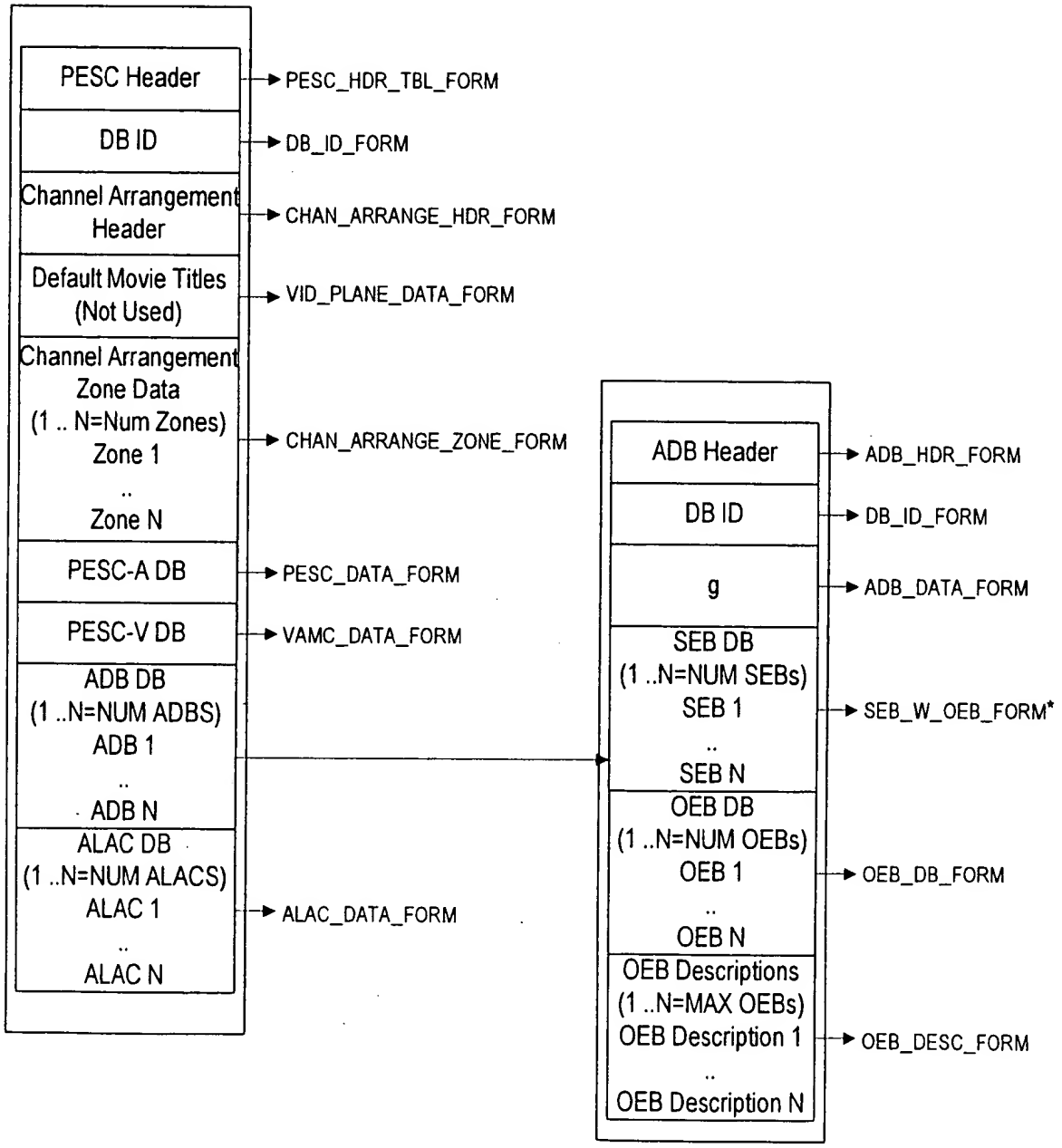

PESC Header
PESC_HDR_TBL_FORM
DB ID
DB_ID_FORM
Channel Arrangement Header
CHAN_ARRANGE_HDR_FORM
Default Movie Titles (Not Used)
VID_PLANE_DATA_FORM
Channel Arrangement Zone Data
(1 .. N=Num Zones)
Zone 1
..
Zone N
CHAN_ARRANGE_ZONE_FORM
PESC-A DB
PESC_DATA_FORM
PESC-V DB
VAMC_DATA_FORM
ADB DB
(1 ..N=NUM ADBS)
ADB 1
..
ADB N
ALAC DB
(1 ..N=NUM ALACS)
ALAC 1
..
ALAC N
ALAC_DATA_FORM
ADB Header
ADB_HDR_FORM
DB ID
DB_ID_FORM
g
ADB_DATA_FORM
SEB DB
(1 ..N=NUM SEBs)
SEB 1
..
SEB N
SEB_W_OEB_FORM*
OEB DB
(1 ..N=NUM OEBs)
OEB 1
..
OEB N
OEB_DB_FORM
OEB Descriptions
(1 ..N=MAX OEBs)
OEB Description 1
..
OEB Description N
OEB_DESC_FORM

Fig. 25b

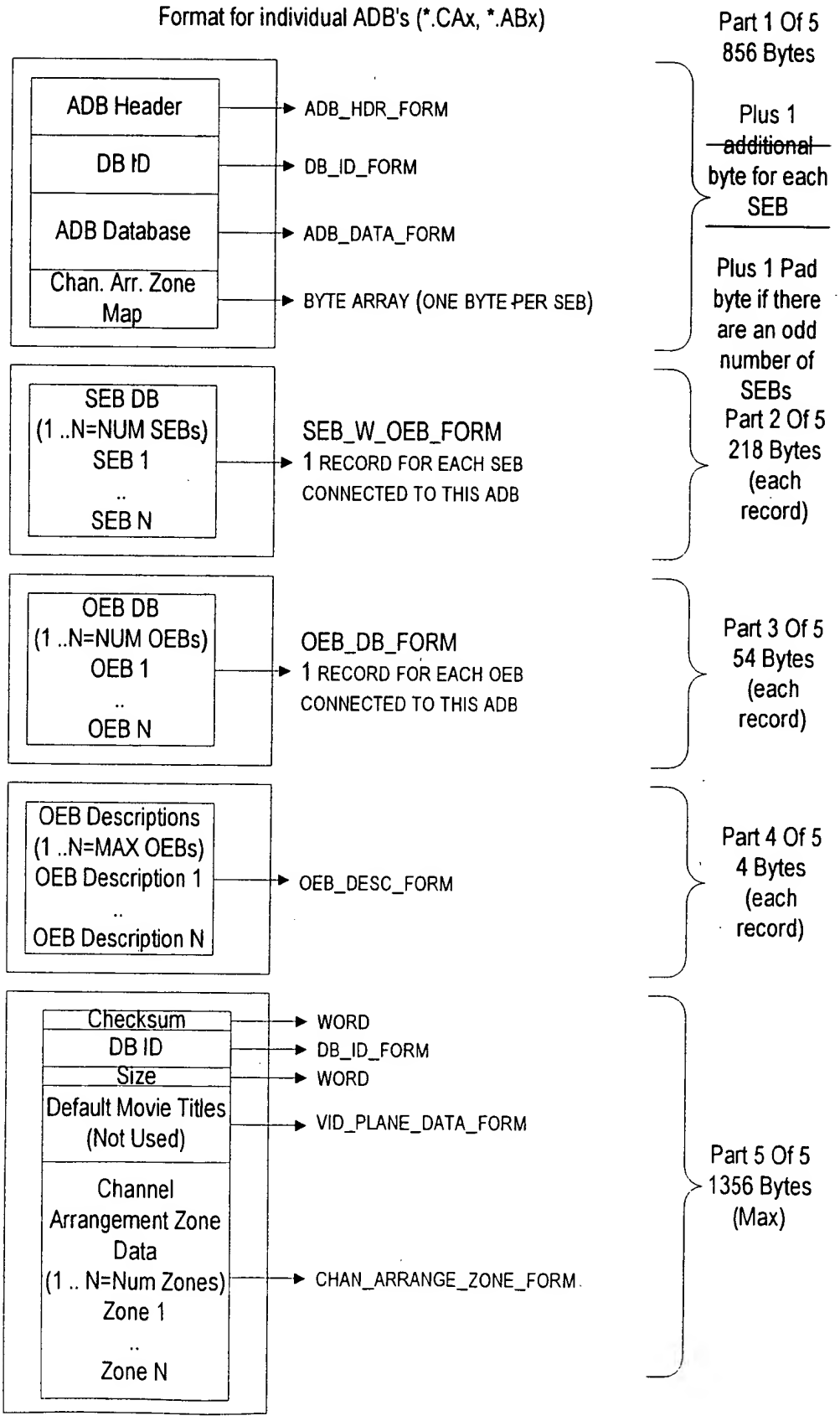
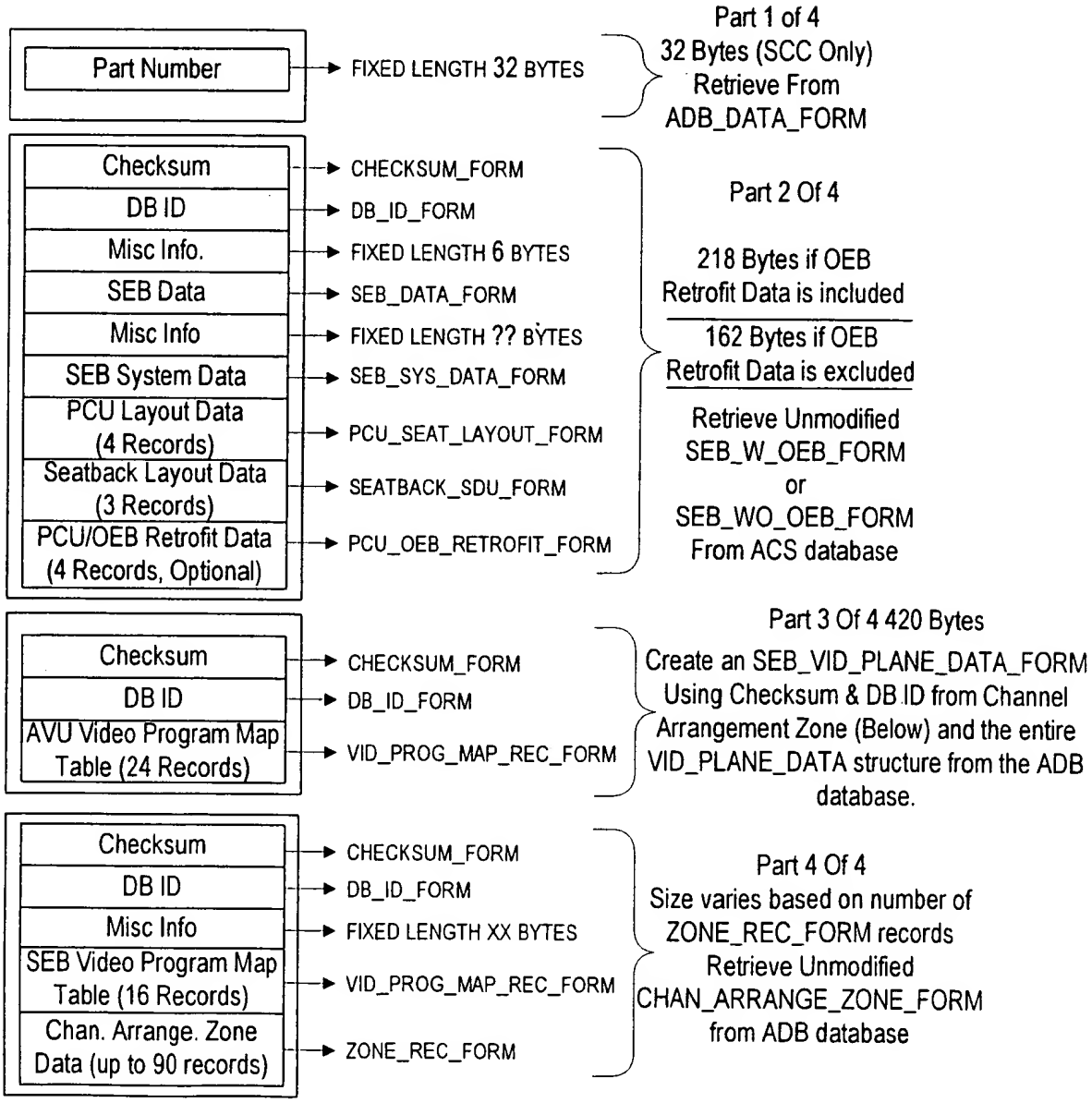

ACS Database
Format for individual ADB's (*.CAx, *.ABx)
ADB Header
DB ID
ADB Database
Chan. Arr. Zone Map
ADB_HDR_FORM
DB_ID_FORM
ADB_DATA_FORM
BYTE ARRAY (ONE BYTE PER SEB)
Part 1 Of 5
856 Bytes
Plus 1 additional byte for each SEB
Plus 1 Pad byte if there are an odd number of SEBs
SEB DB
(1 ..N=NUM SEBs)
SEB 1
..
SEB N
SEB_W_OEB_FORM
1 RECORD FOR EACH SEB CONNECTED TO THIS ADB
Part 2 Of 5
218 Bytes
(each record)
OEB DB
(1 ..N=NUM OEBs)
OEB 1
..
OEB N
OEB_DB_FORM
1 RECORD FOR EACH OEB CONNECTED TO THIS ADB
Part 3 Of 5
54 Bytes
(each record)
OEB Descriptions
(1 ..N=MAX OEBs)
OEB Description 1
..
OEB Description N
OEB_DESC_FORM
Part 4 Of 5
4 Bytes
(each record)
Checksum
DB ID
Size
Default Movie Titles (Not Used)
Channel Arrangement Zone Data
(1 .. N=Num Zones)
Zone 1
..
Zone N
WORD
DB_ID_FORM
WORD
VID_PLANE_DATA_FORM
CHAN_ARRANGE_ZONE_FORM
Part 5 Of 5
1356 Bytes
(Max)

Fig. 25c

ACS Database
Format for individual SEB's
This file is constructed by ADBs/ACCs



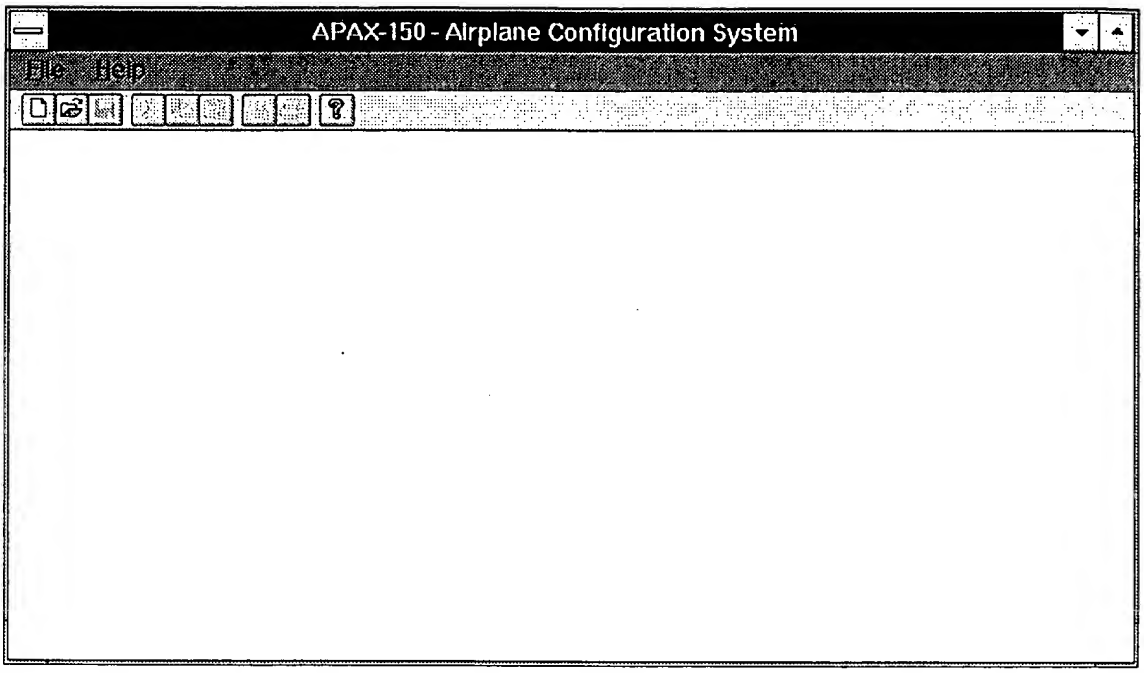


Fig. 26-1

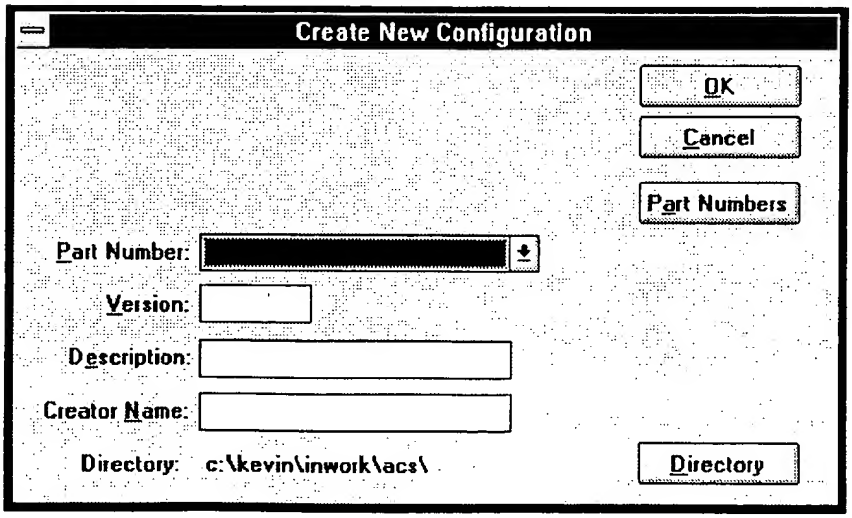


Fig. 26-2

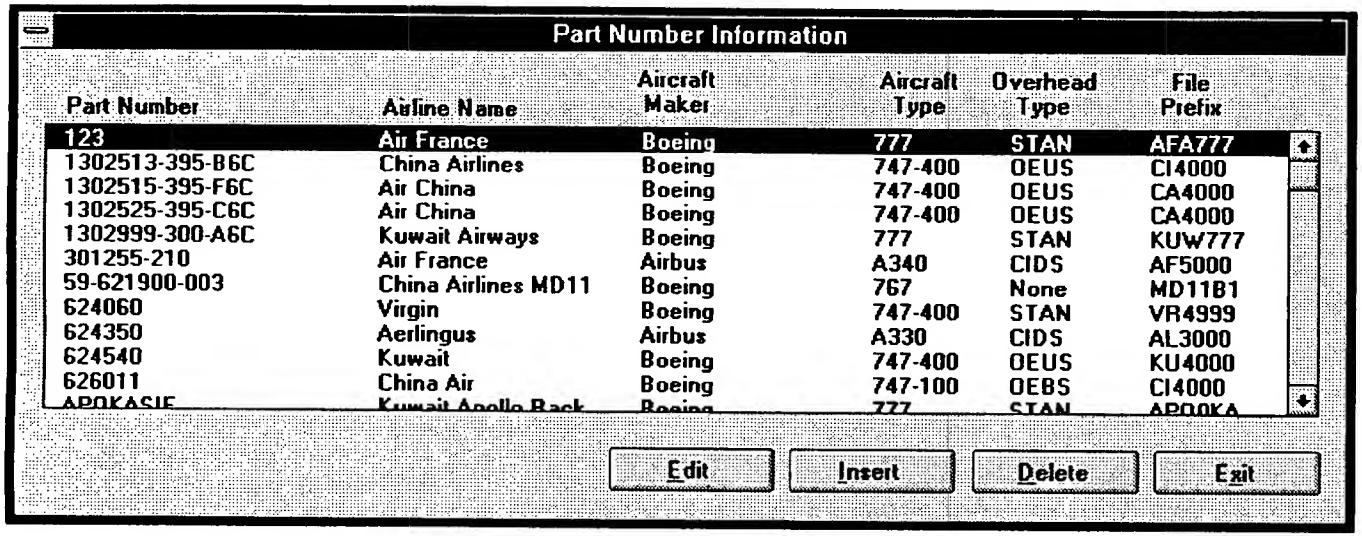


Fig. 26-3

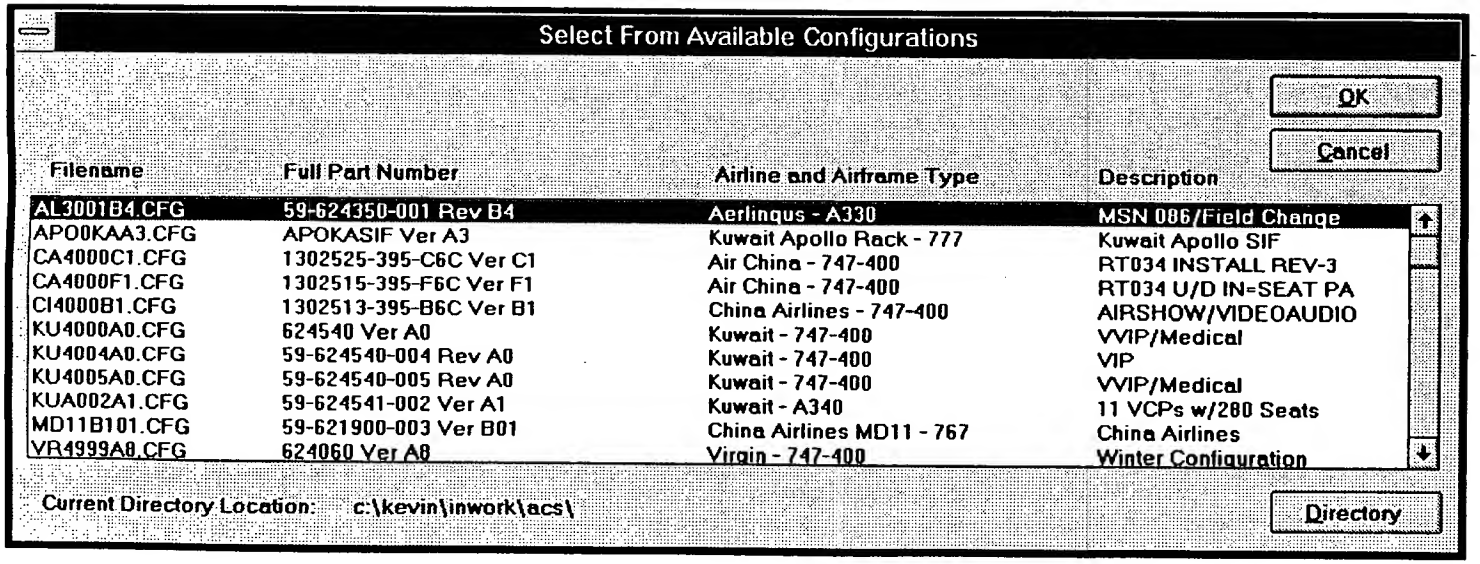


Fig. 26-5

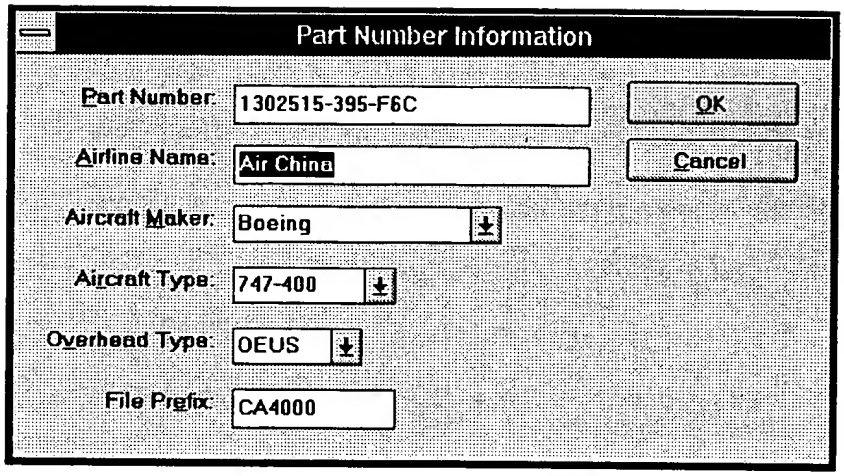


Fig. 26-4

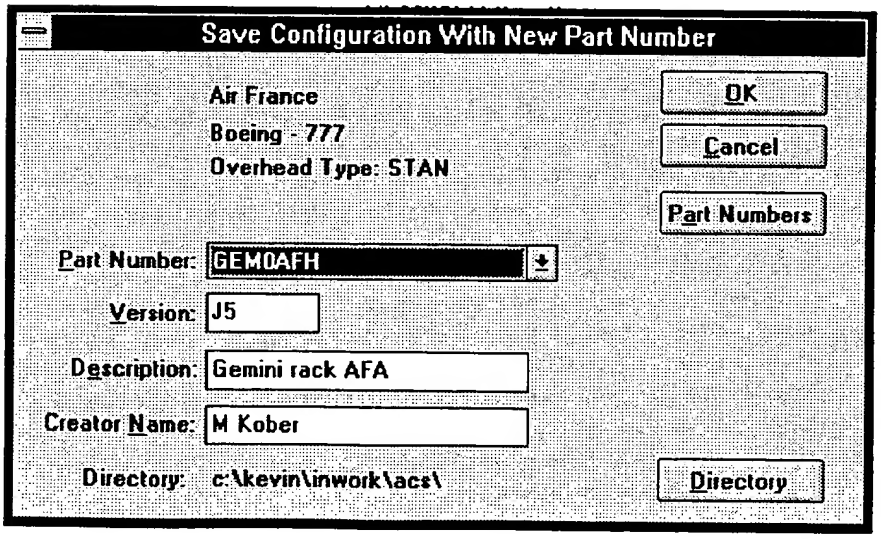


Fig. 26-6

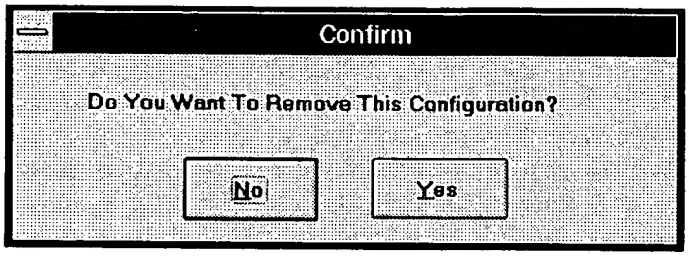


Fig. 26-7

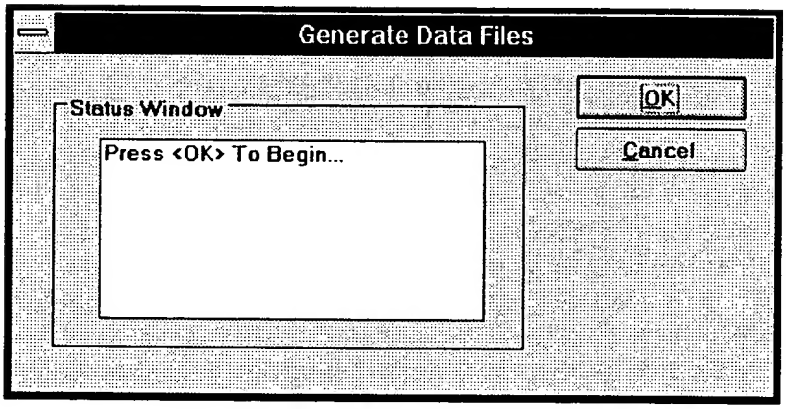


Fig. 26-8

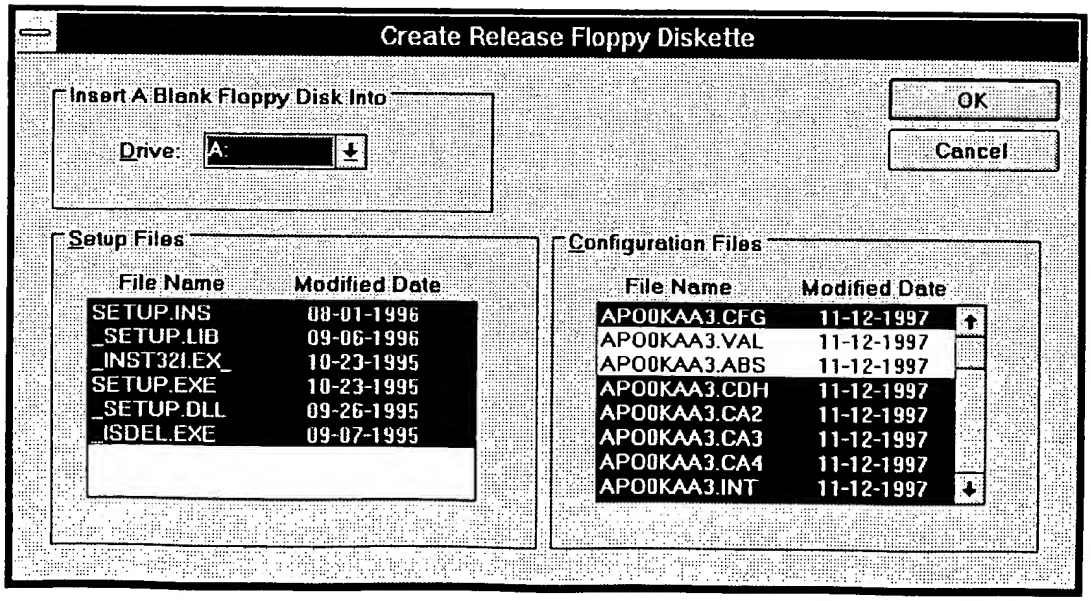


Fig. 26-9

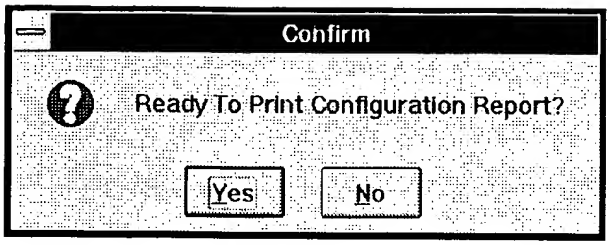


Fig. 26-10

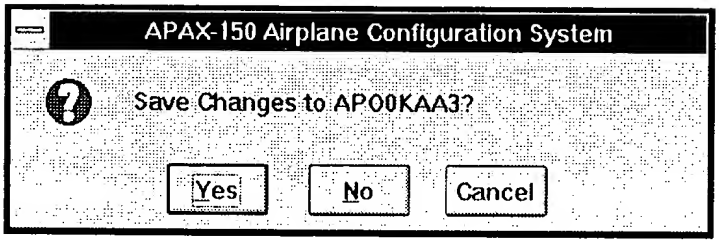


Fig. 26-11

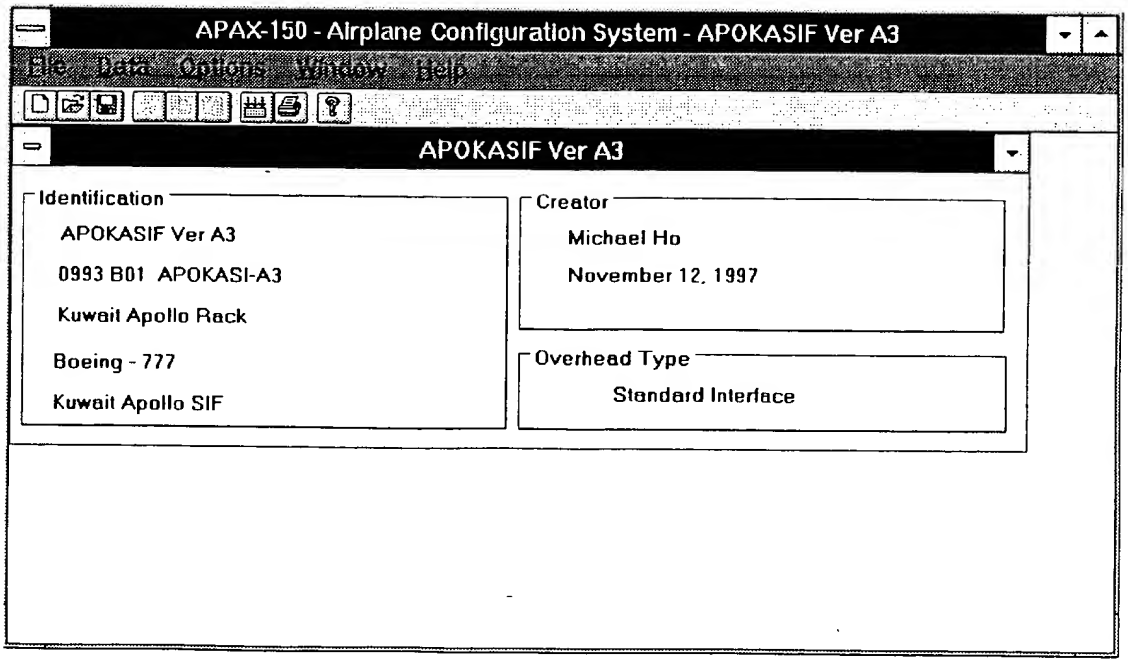


Fig. 26-12

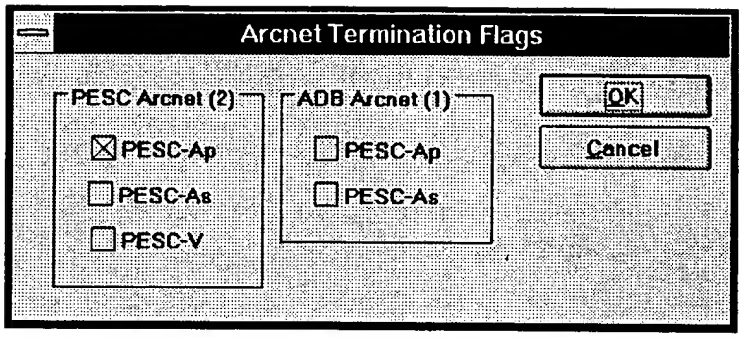


Fig. 26-13

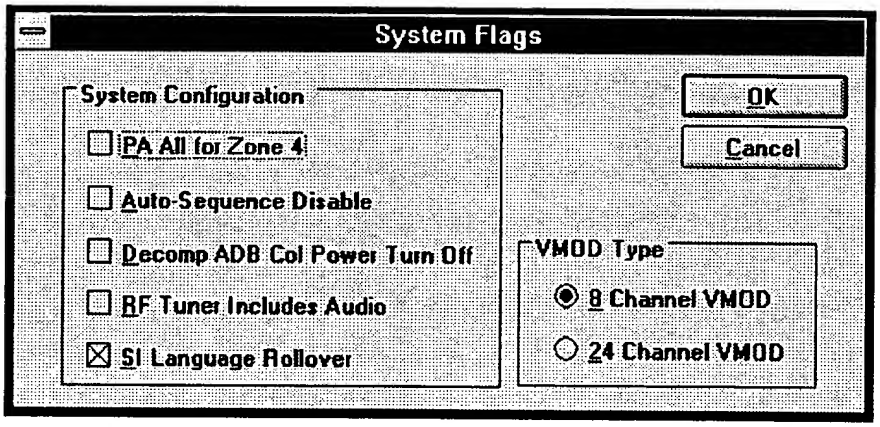


Fig. 26-14

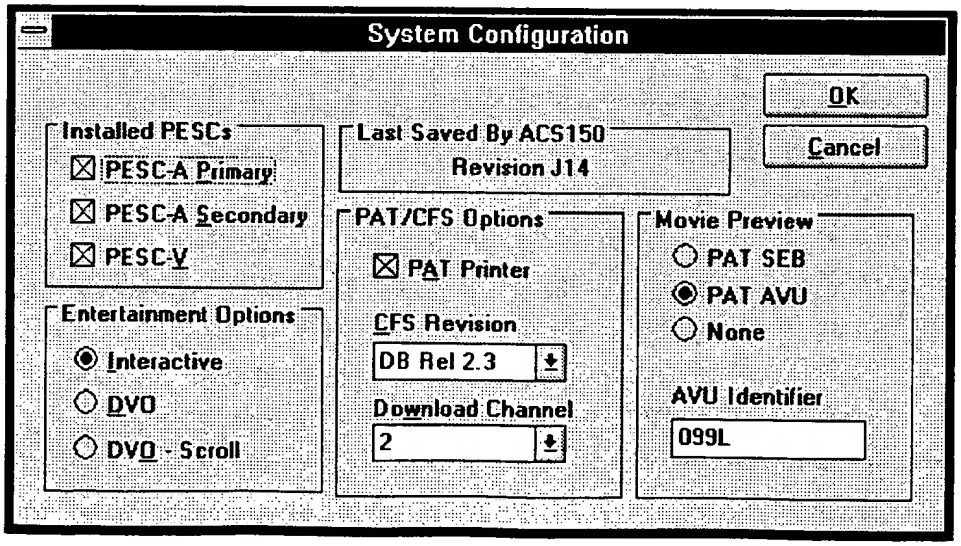


Fig. 26-15

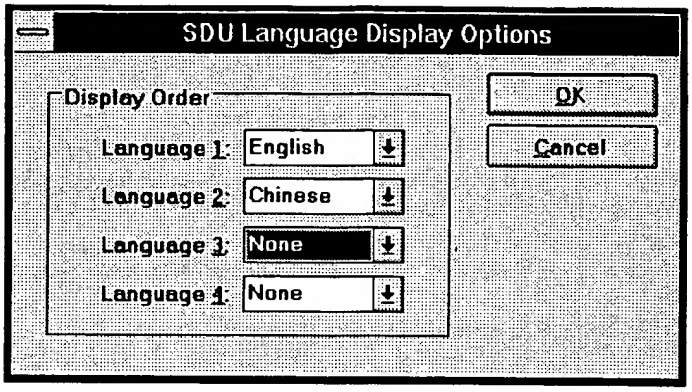


Fig. 26-16

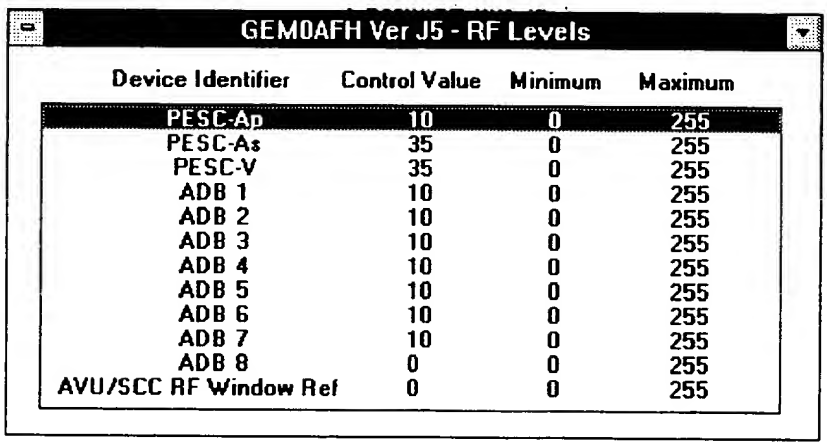


Fig. 26-17

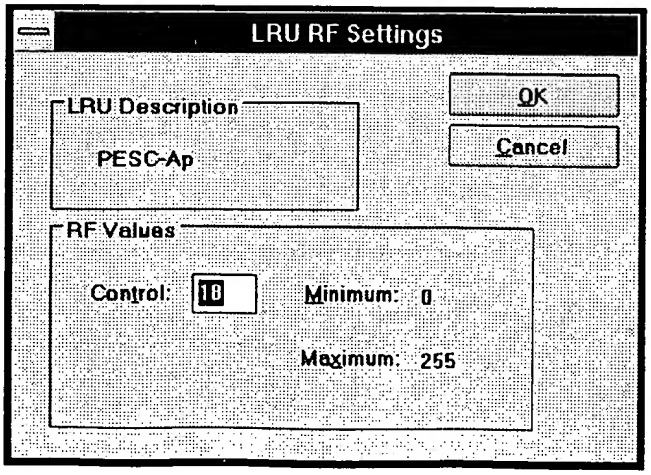


Fig. 26-18

APOKASIF Ver A3 - Seating Arrangements

ADB Number: ADB 1 | Seat Column: J6=Column 1 | Type: SEB

SEB ..	Seat Row Id (01-97,C1,C2)	FDB	Column Location	Seat Letters J3 J4 J5 J6	PCU Output J3 J4 J5 J6	SDU Output J7 J8 J9	Phone J3 J4 J5
1	11	1	OL	A	Y	Y	Y
2	11	1	OL	C	Y	Y	
3							
4							
5							
6							
7							
8							
9							

Fig. 26-19

SEB Configuration

Location: ADB 1 | Column 4 | Seat Box 1

OK

Cancel

Identification

Seat Row Id: 14

Location: OL

FDB: FDB 1

Seat Letters: A B

Seat Box Capability

PCU Outputs J3 J4 J5 J6	SDU Outputs J7 J8 J9	Phone J3 J4 J5
☒ ☒ ☐ ☐	☒ ☒ ☐	☒ ☒ ☐

Fig. 26-20

GEM0AFH Ver J5 - Seating Arrangements

ADB Number: ADB 1 | Seat Column: J5=Column 2 | Type: AVU

SCC ..	Seat Row Id (01-97,C1,C2)	FDB	Column Location	Seat Letter	PCU Output	SDU Output	Phone
1	12	-	OL	A	Y	Y	Y
2	12	-	OL	B	Y	Y	Y
3	12	-	OL	C	Y	Y	Y
4	12	-	CNTR	D	Y	Y	Y
5	12	-	CNTR	E	Y	Y	Y
6	12	-	CNTR	F	Y	Y	Y
7	12	-	CNTR	G	Y	Y	Y
8	12	-	CNTR	H	Y	Y	Y
9	12	-	CNTR	I	Y	Y	Y

Fig. 26-21

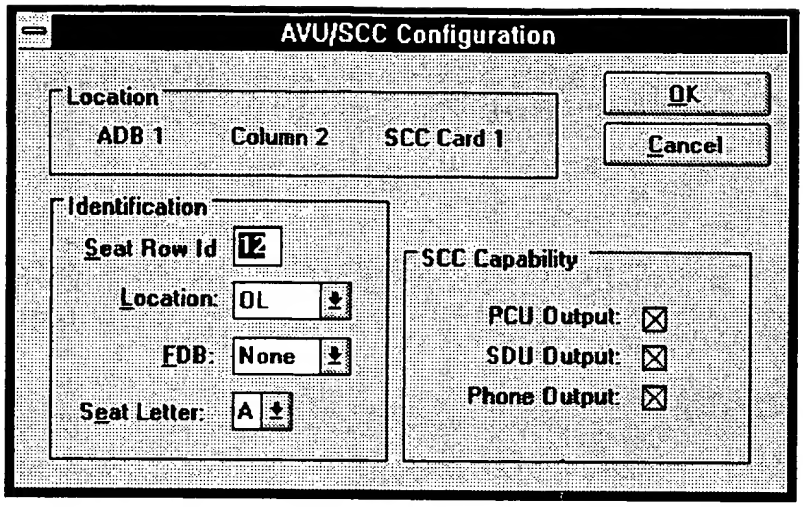


Fig. 26-22

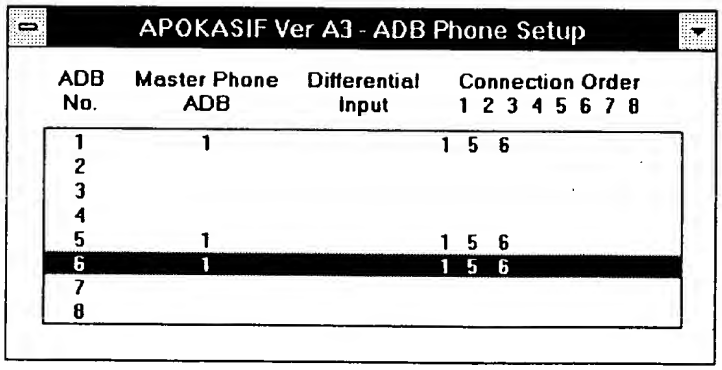


Fig. 26-23

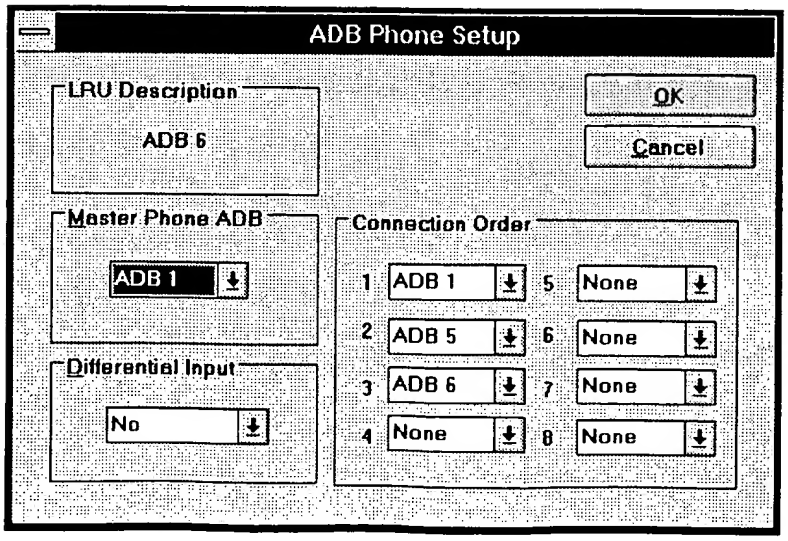


Fig. 26-24

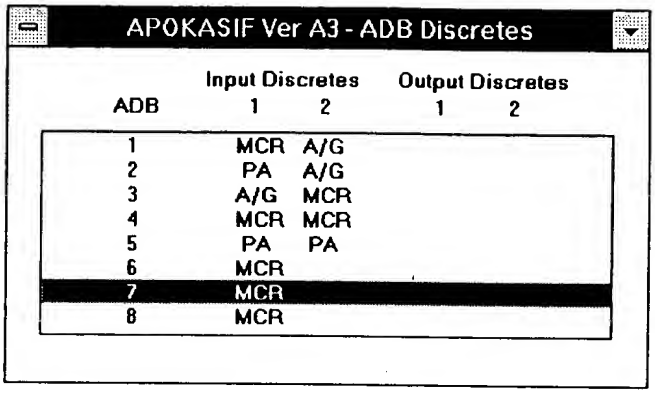


Fig. 26-25

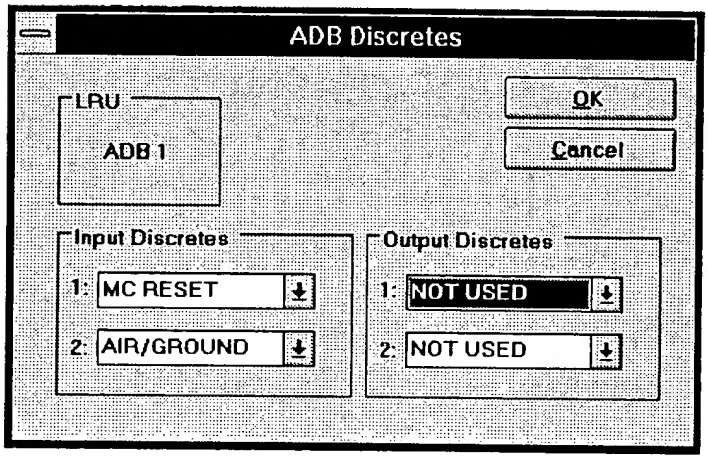


Fig. 26-26

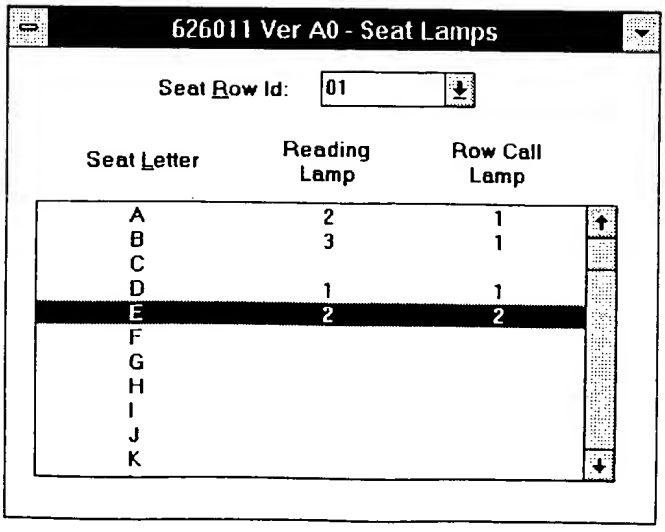


Fig. 26-27

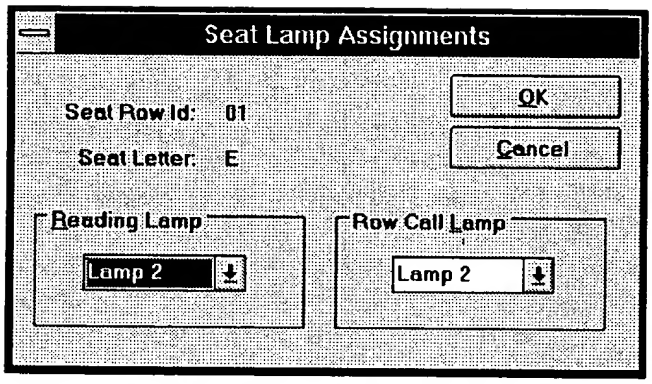


Fig. 26-28

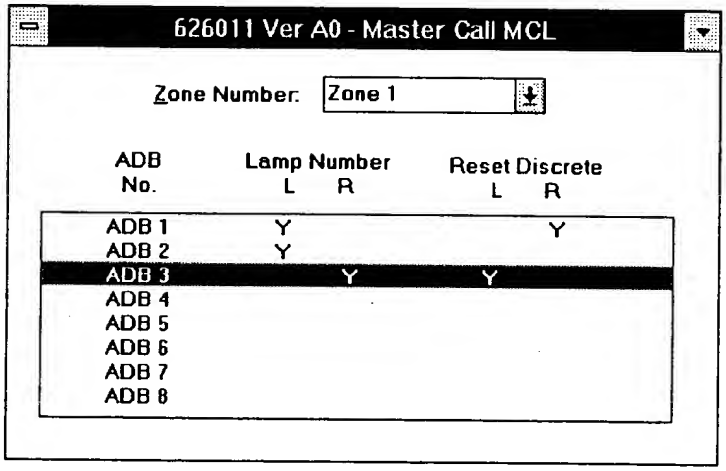


Fig. 26-29

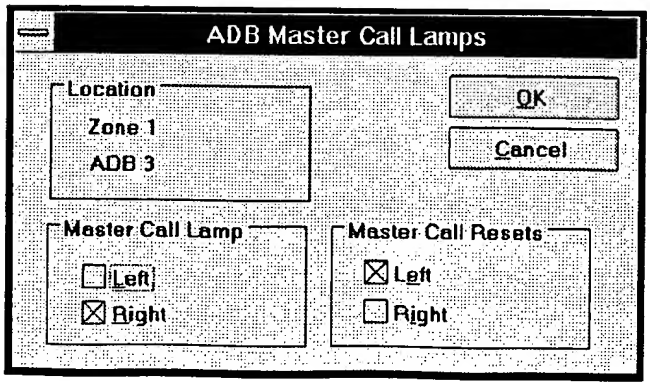


Fig. 26-30

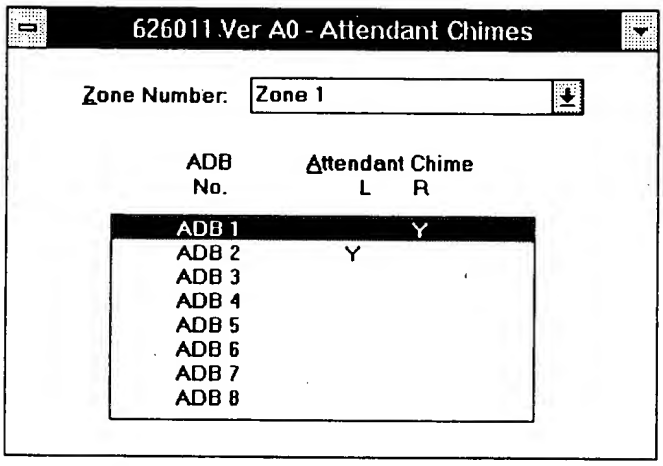


Fig. 26-31

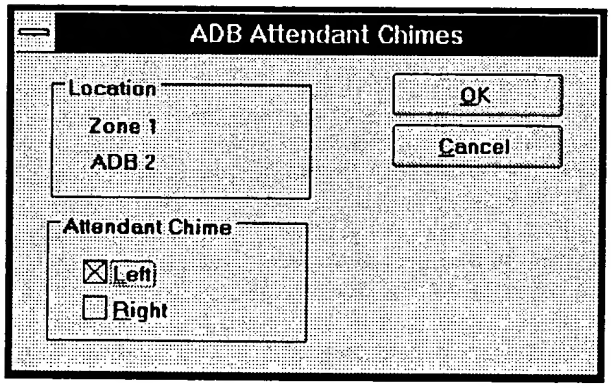


Fig. 26-32

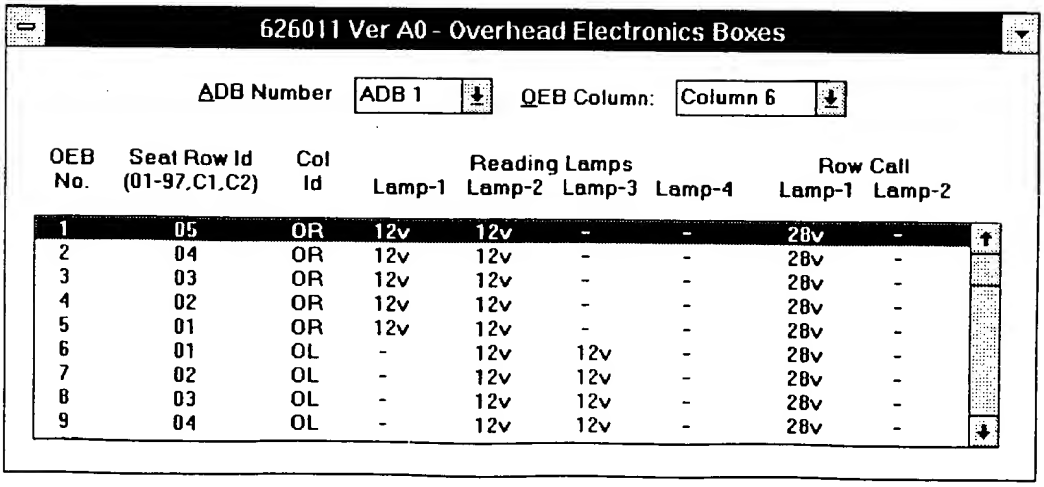


Fig. 26-33

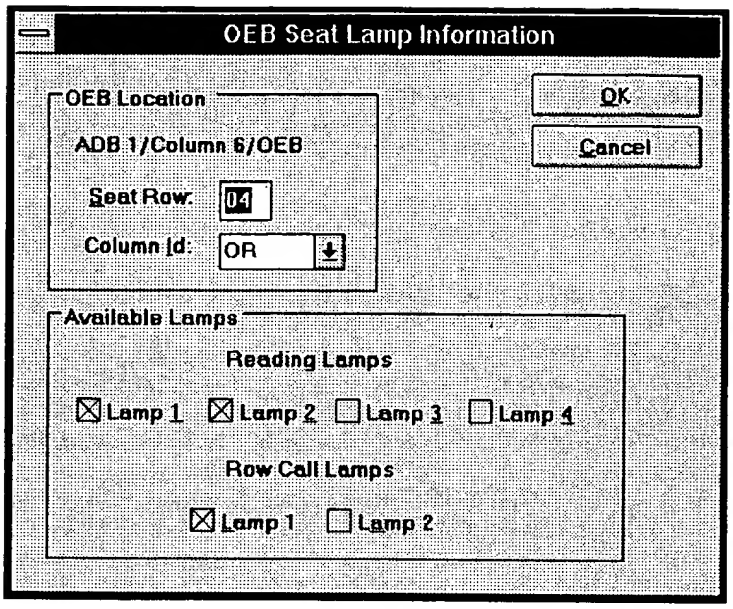


Fig. 26-34

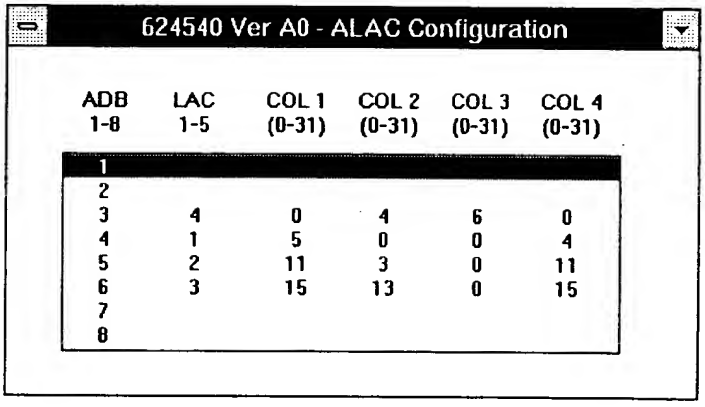


Fig. 26-35

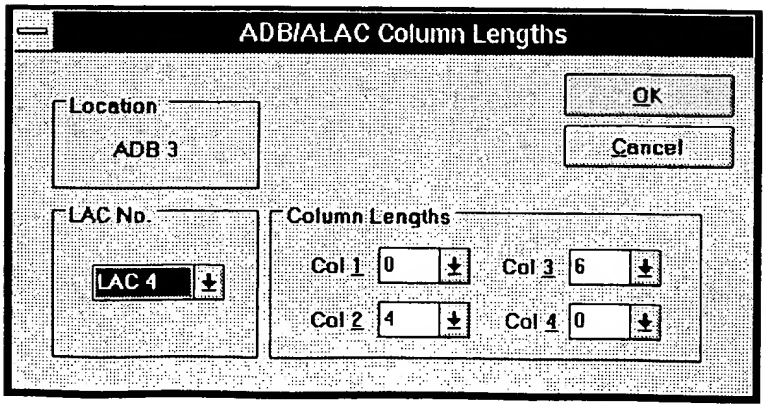


Fig. 26-36

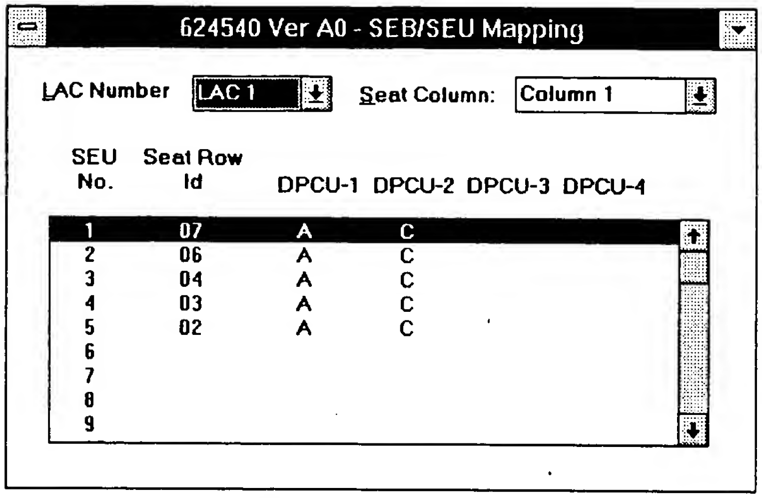


Fig. 26-37

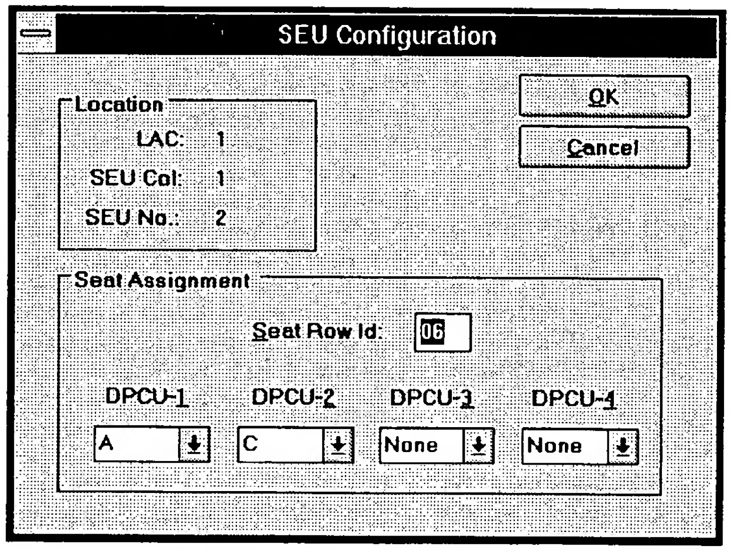


Fig. 26-38

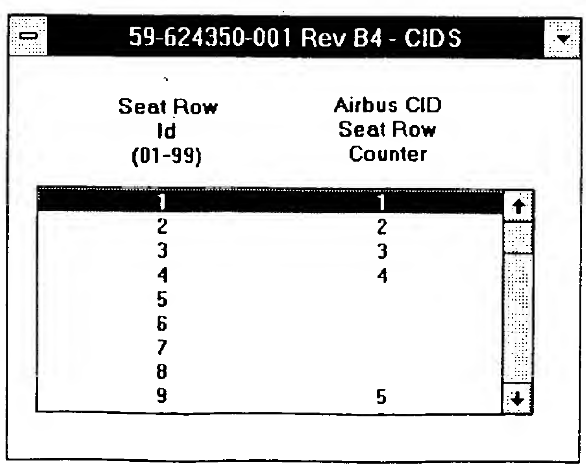


Fig. 26-39

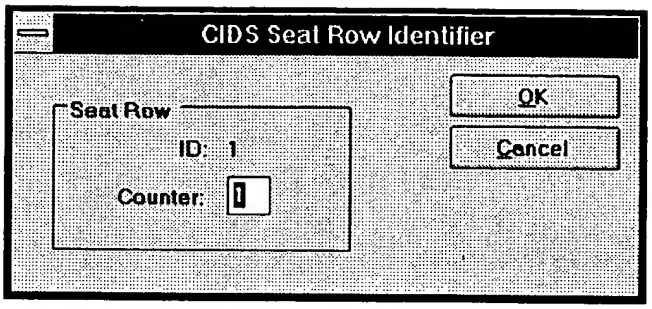


Fig. 26-40

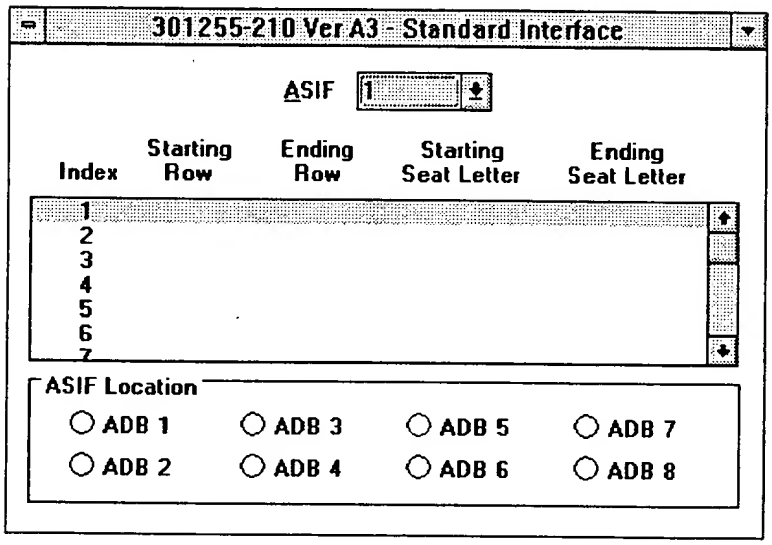


Fig. 26-41

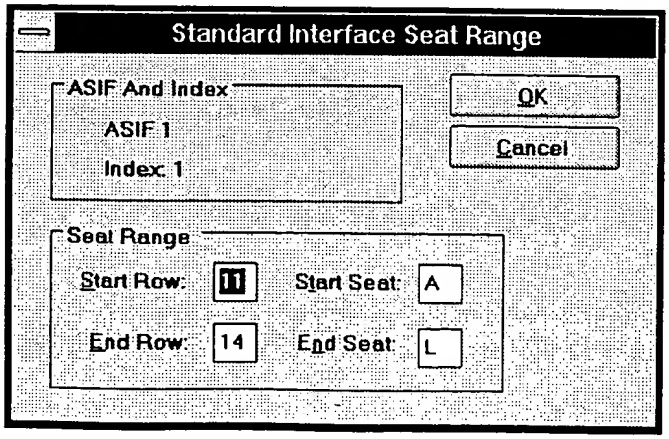


Fig. 26-42

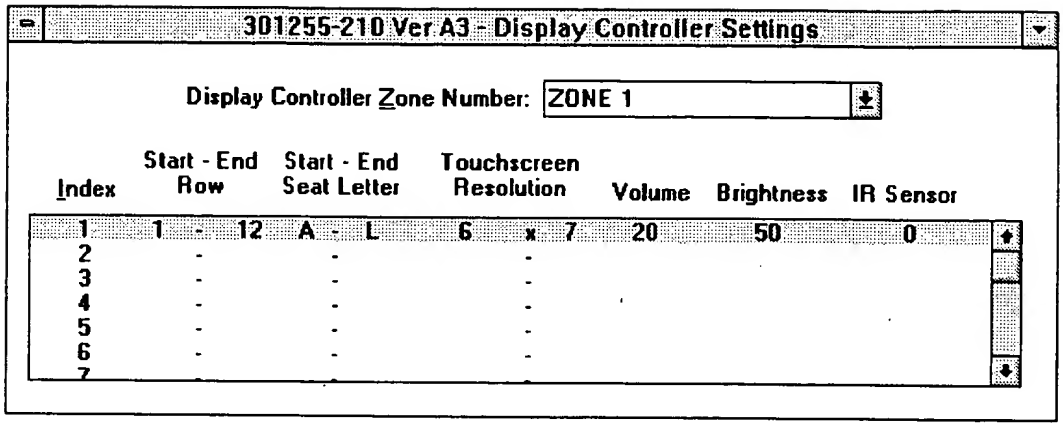


Fig. 26-43

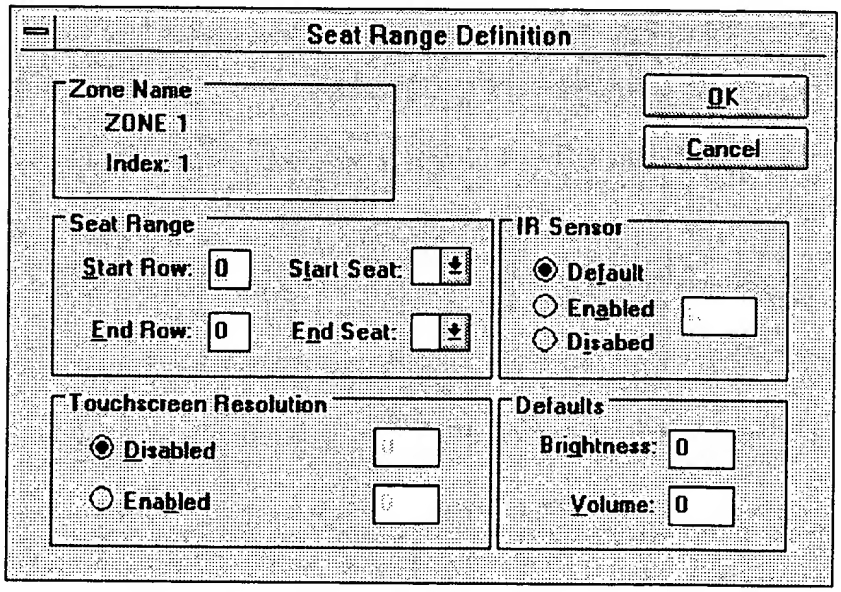


Fig. 26-44

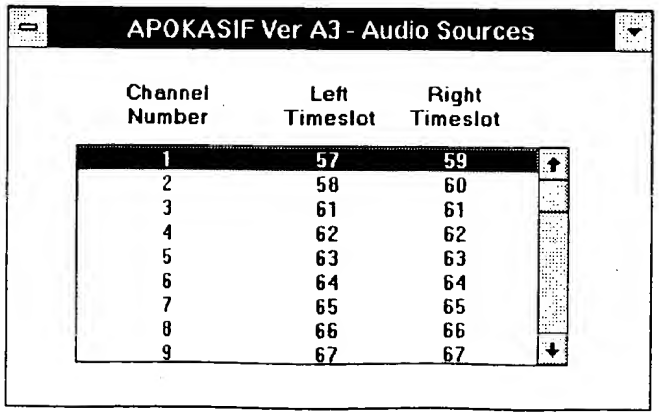


Fig. 26-45

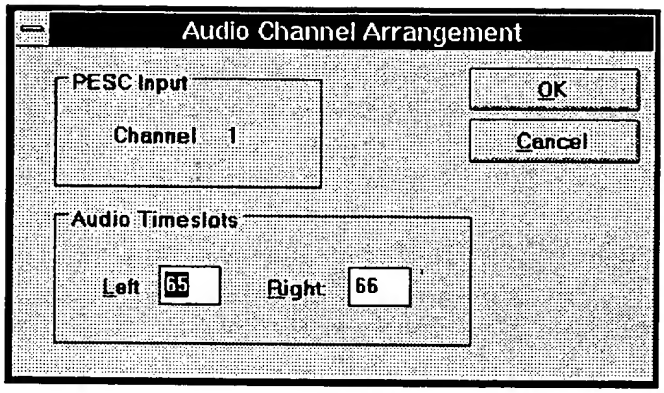


Fig. 26-46

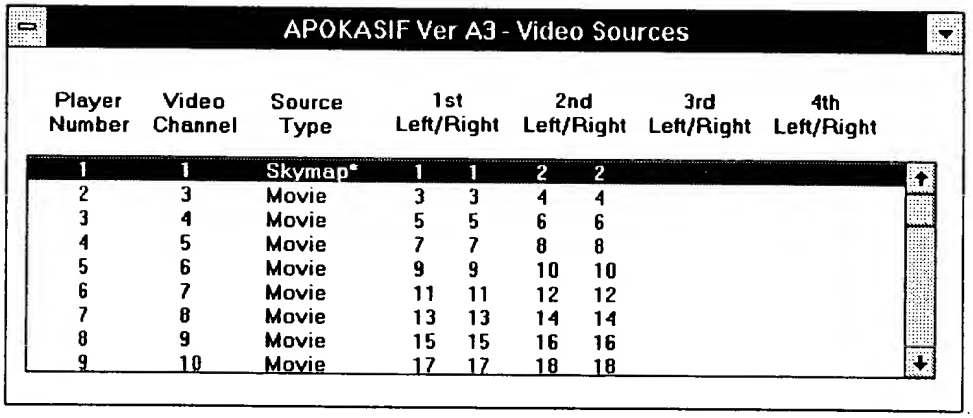


Fig. 26-47

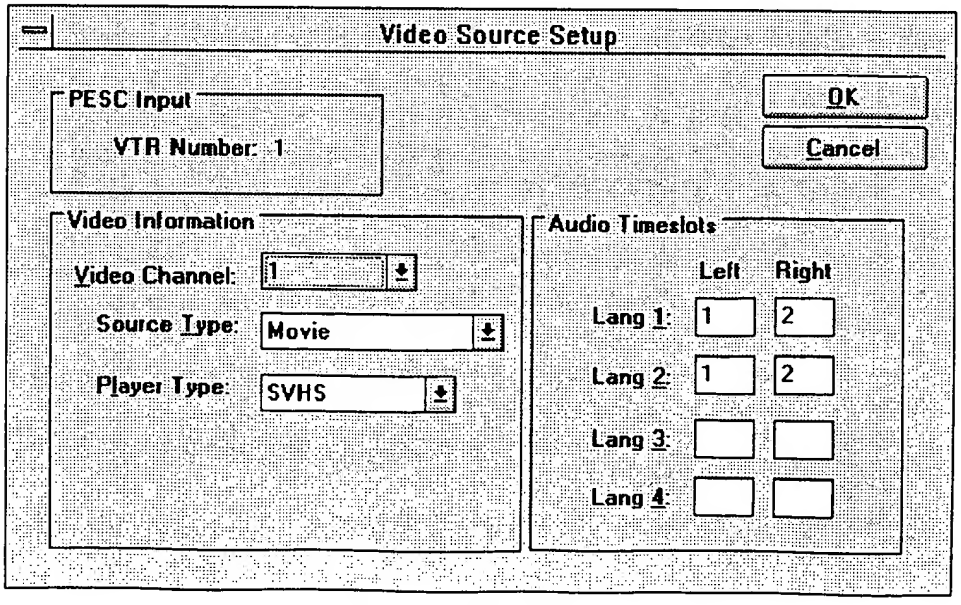


Fig. 26-48

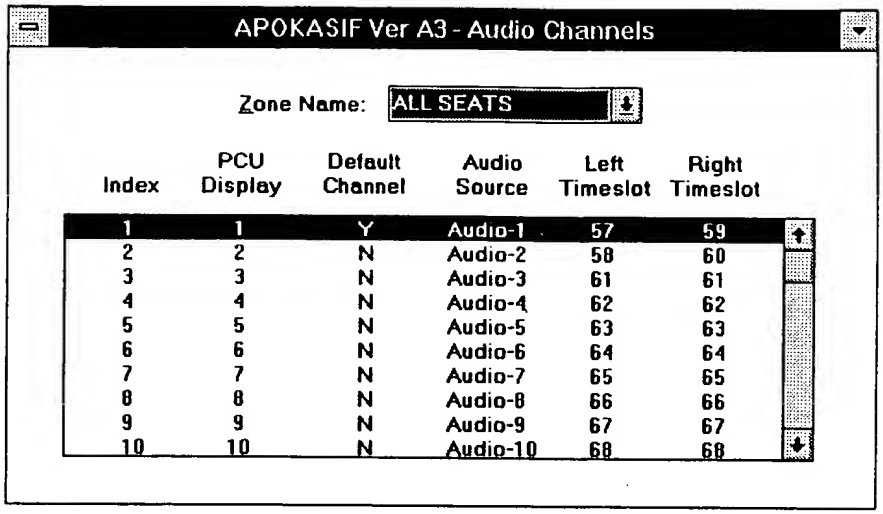


Fig. 26-49

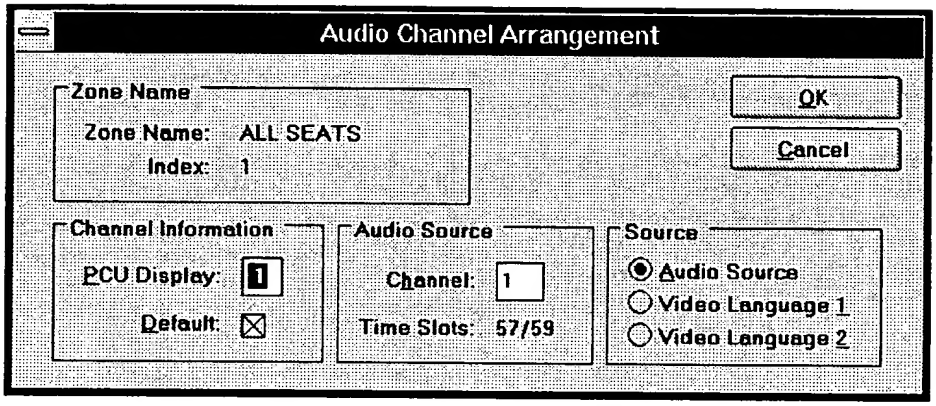


Fig. 26-50

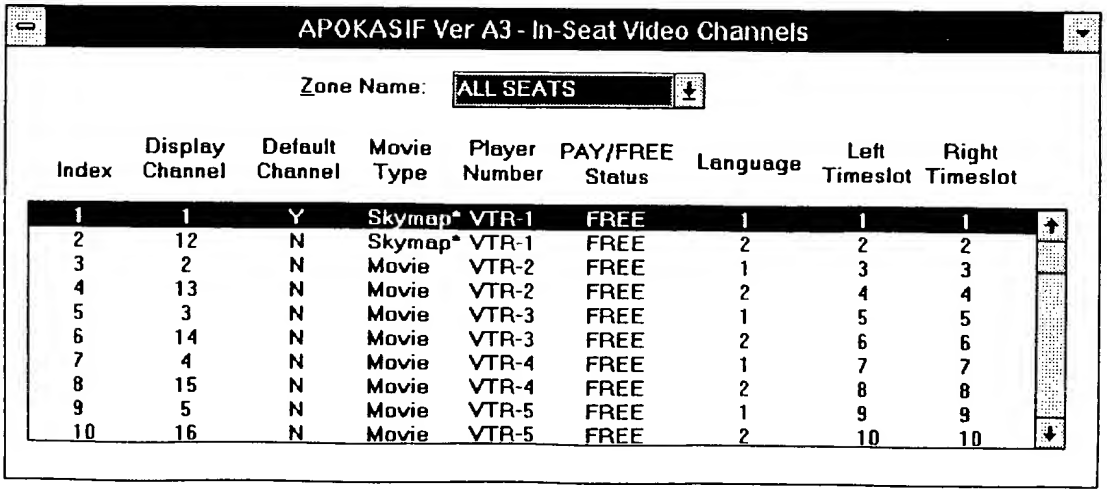


Fig. 26-51

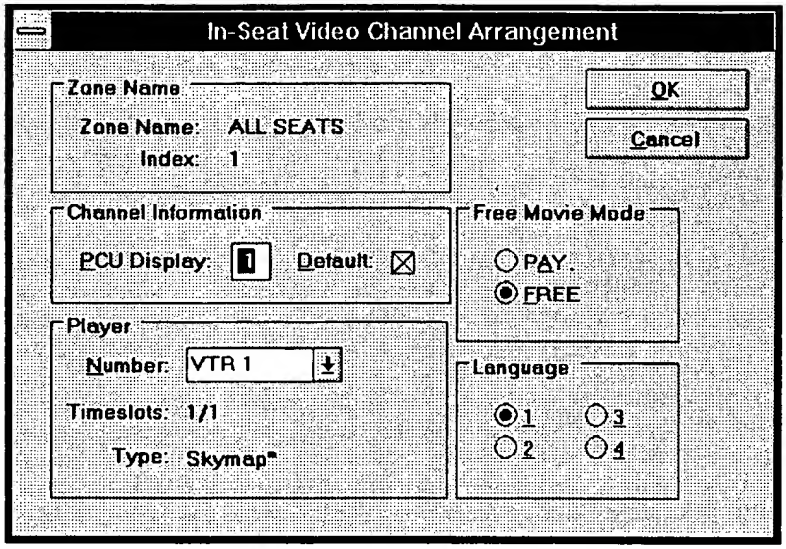


Fig. 26-52

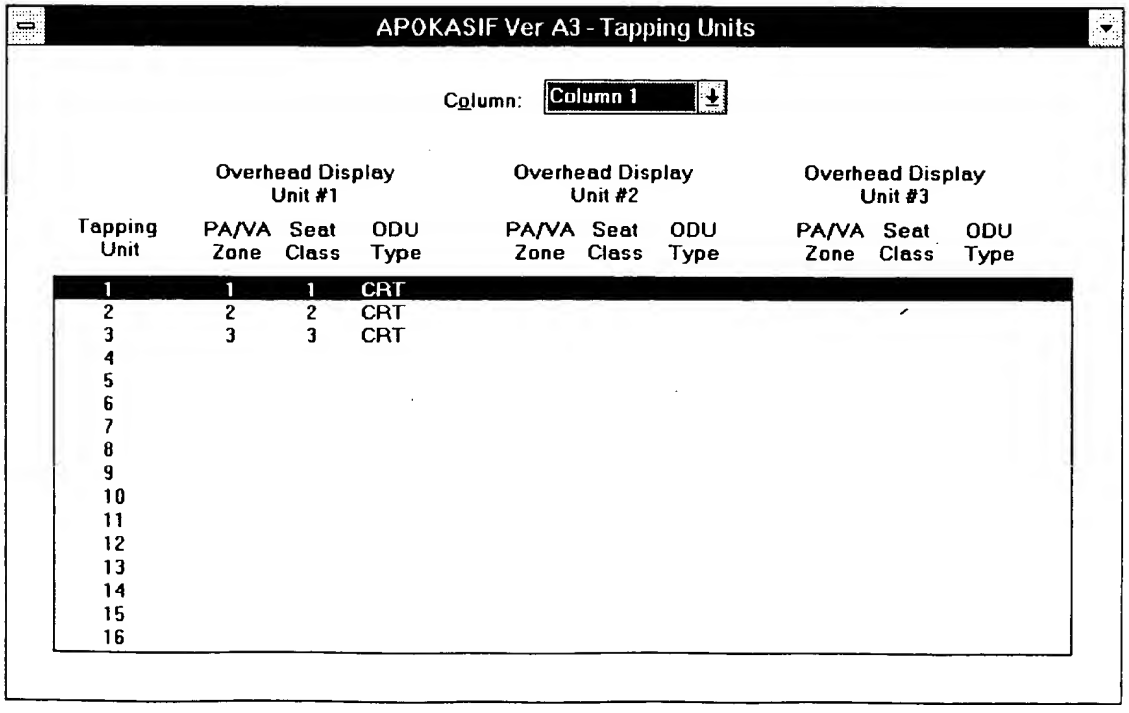


Fig. 26-53

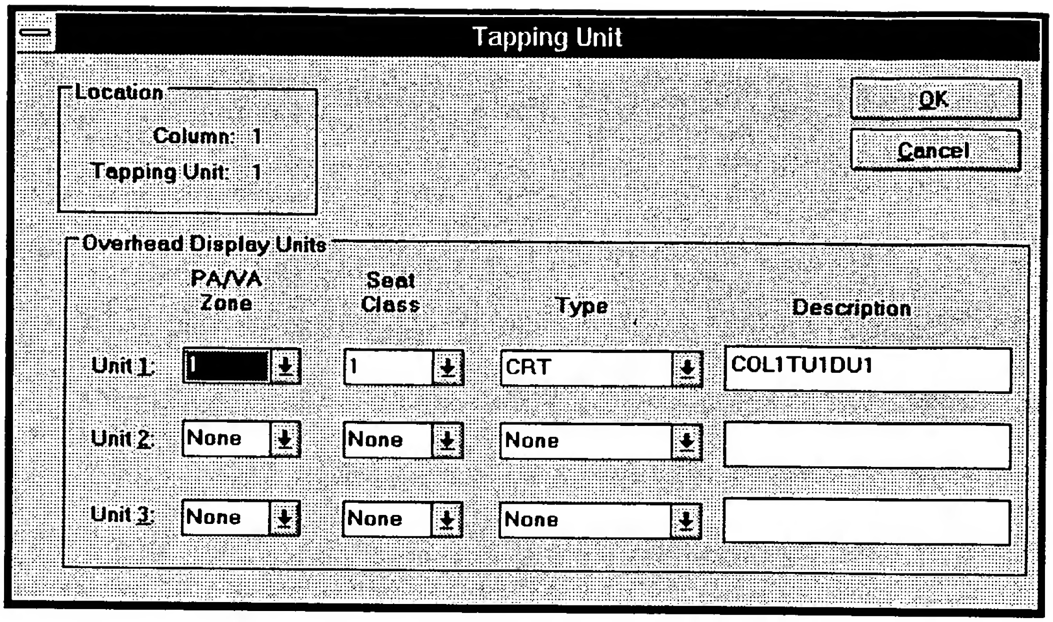


Fig. 26-54

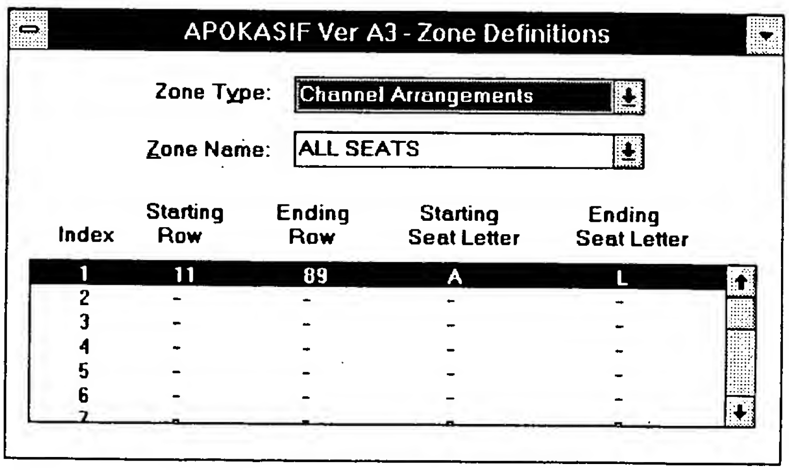


Fig. 26-55

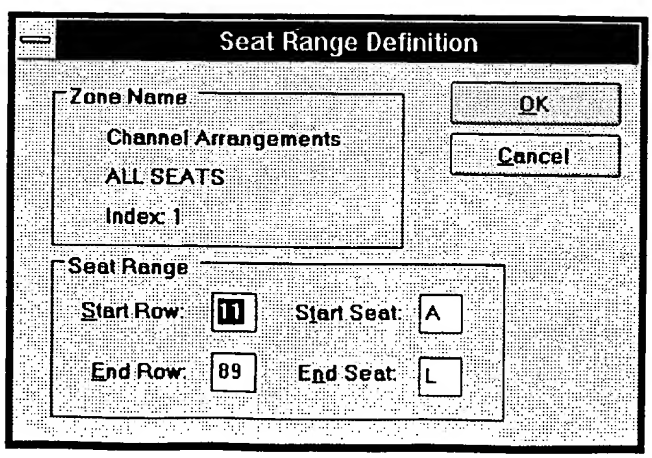


Fig. 26-56

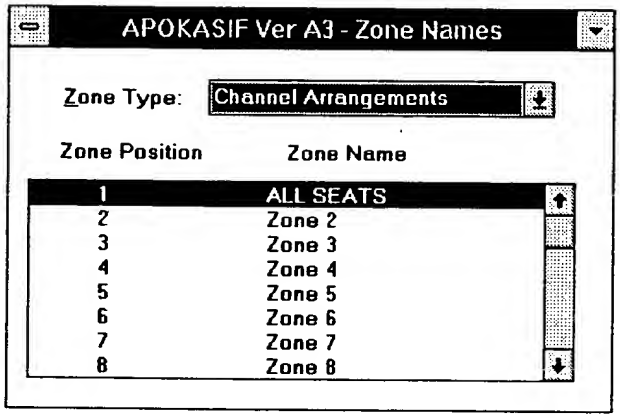


Fig. 26-57

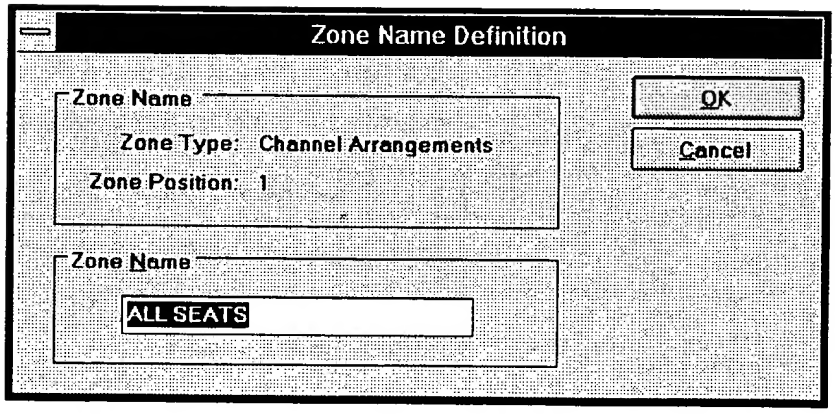


Fig. 26-58

Fig. 27

Control Center Runtime Software Architecture (PAT and CFS)

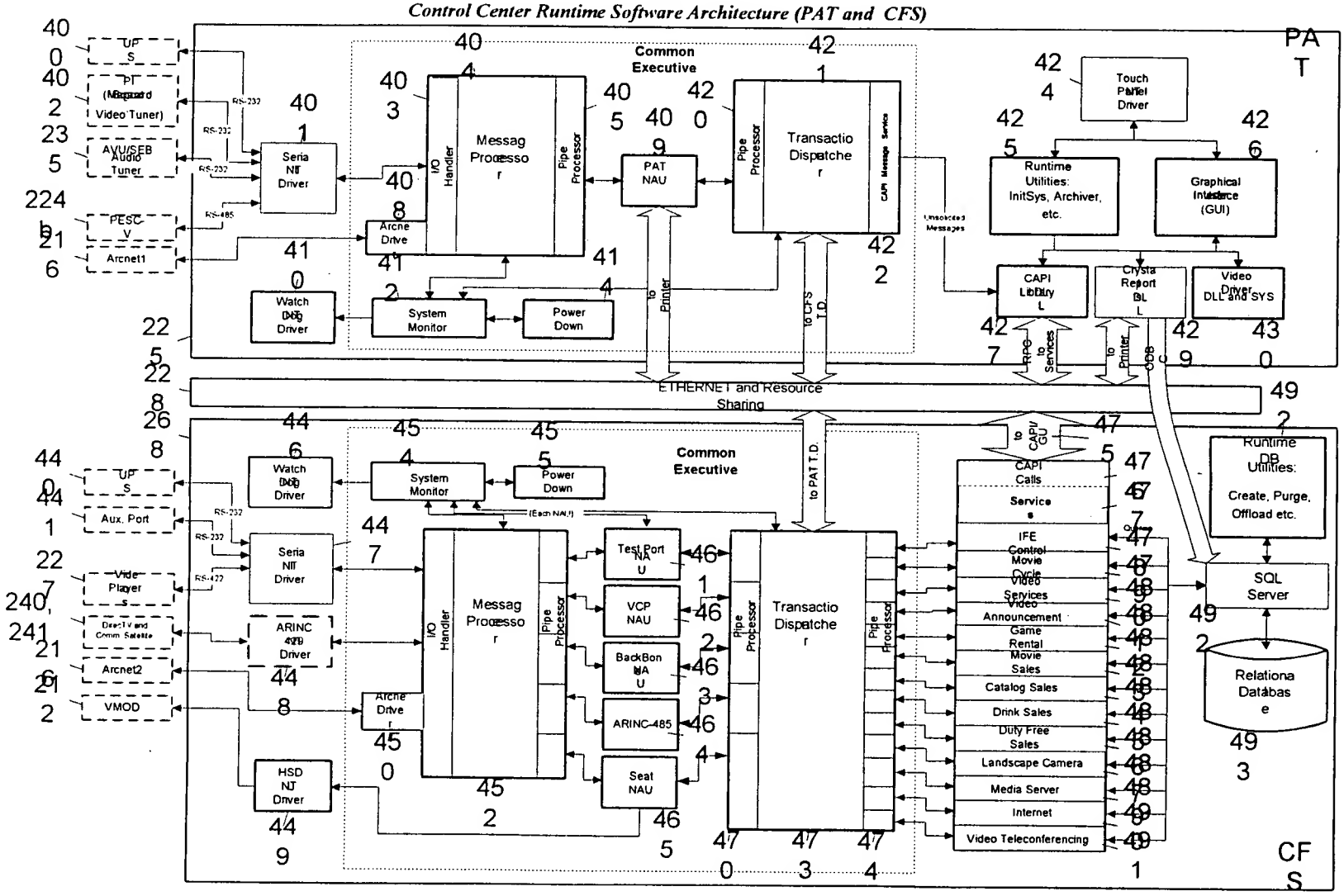


Fig. 28

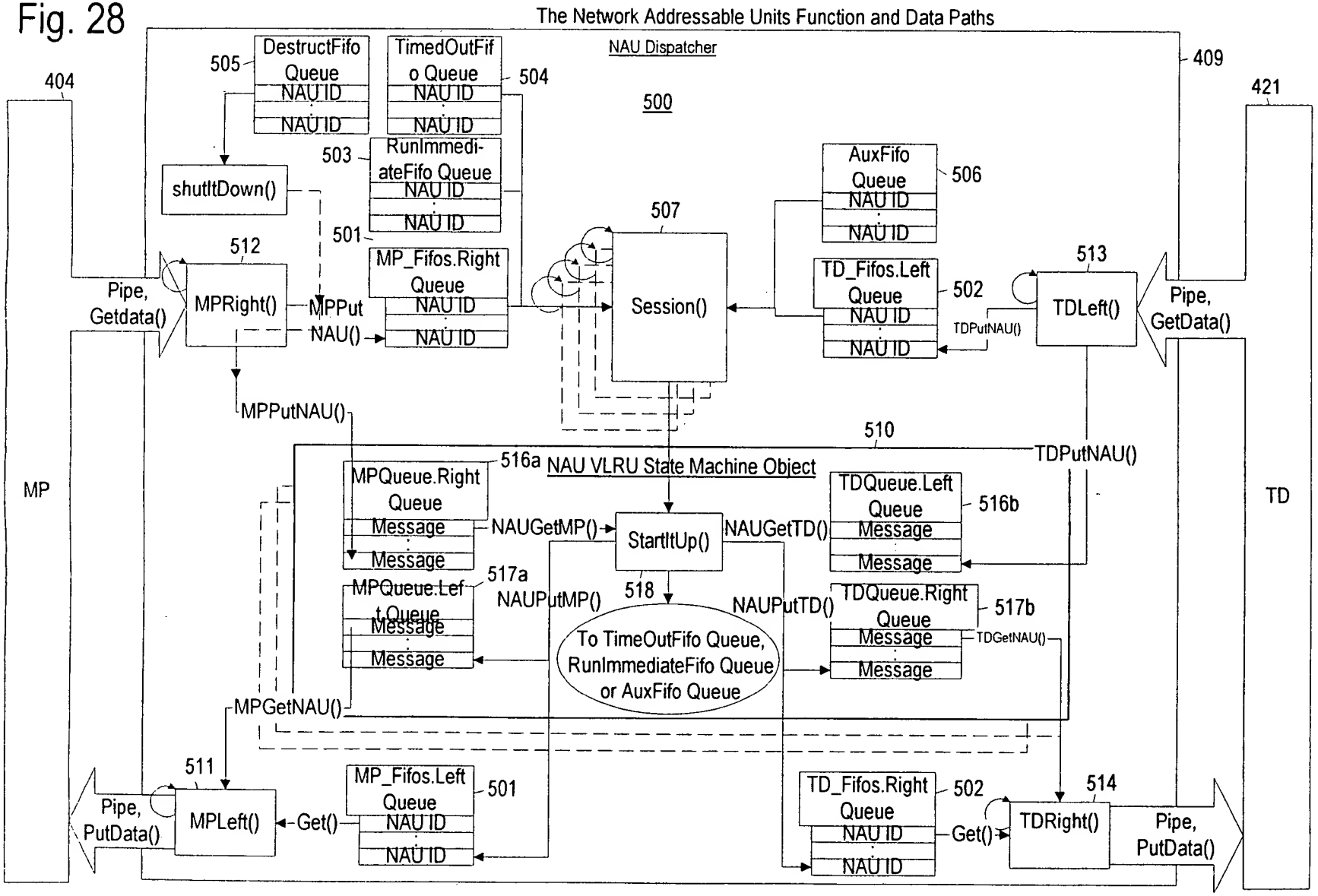
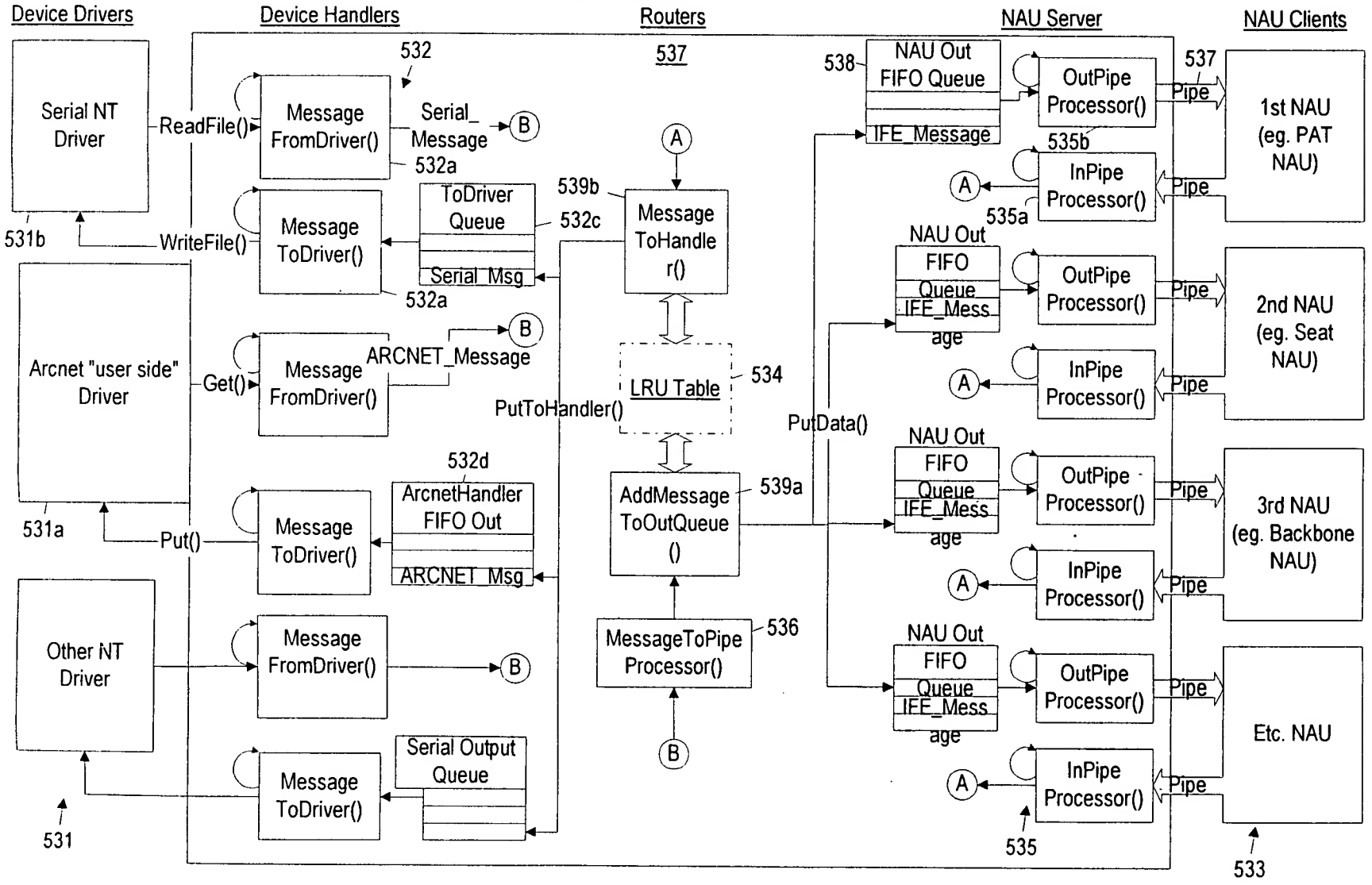

The Network Addressable Units Function and Data Paths
NAU Dispatcher
500
409
404
421
505
DestructFifo Queue
NAU ID
NAU ID
504
TimedOutFifo Queue
NAU ID
NAU ID
503
RunImmediateFifo Queue
NAU ID
NAU ID
shutItDown()
507
AuxFifo Queue
506
NAU ID
NAU ID
501
512
MP_Fifos.Right Queue
NAU ID
NAU ID
Pipe, Getdata()
MPRight()
MPPut NAU()
Session()
TD_Fifos.Left Queue
502
NAU ID
NAU ID
TDPutNAU()
513
TDLeft()
Pipe, GetData()
MPPutNAU()
510
TDPutNAU()
516a
NAU VLRU State Machine Object
MP
MPQueue.Right Queue
Message
Message
NAUGetMP()
StartItUp()
NAUGetTD()
TDQueue.Left Queue
516b
Message
Message
TD
517a
MPQueue.Left Queue
Message
Message
NAUPutMP()
518
NAUPutTD()
TDQueue.Right Queue
517b
Message
Message
TDGetNAU()
To TimeOutFifo Queue, RunImmediateFifo Queue or AuxFifo Queue
MPGetNAU()
511
MP_Fifos.Left Queue
501
Pipe, PutData()
MPLeft()
Get()
NAU ID
NAU ID
TD_Fifos.Right Queue
502
514
Get()
TDRight()
Pipe, PutData()
NAU ID
NAU ID

Fig. 29

The Message Processor Function and Data Paths



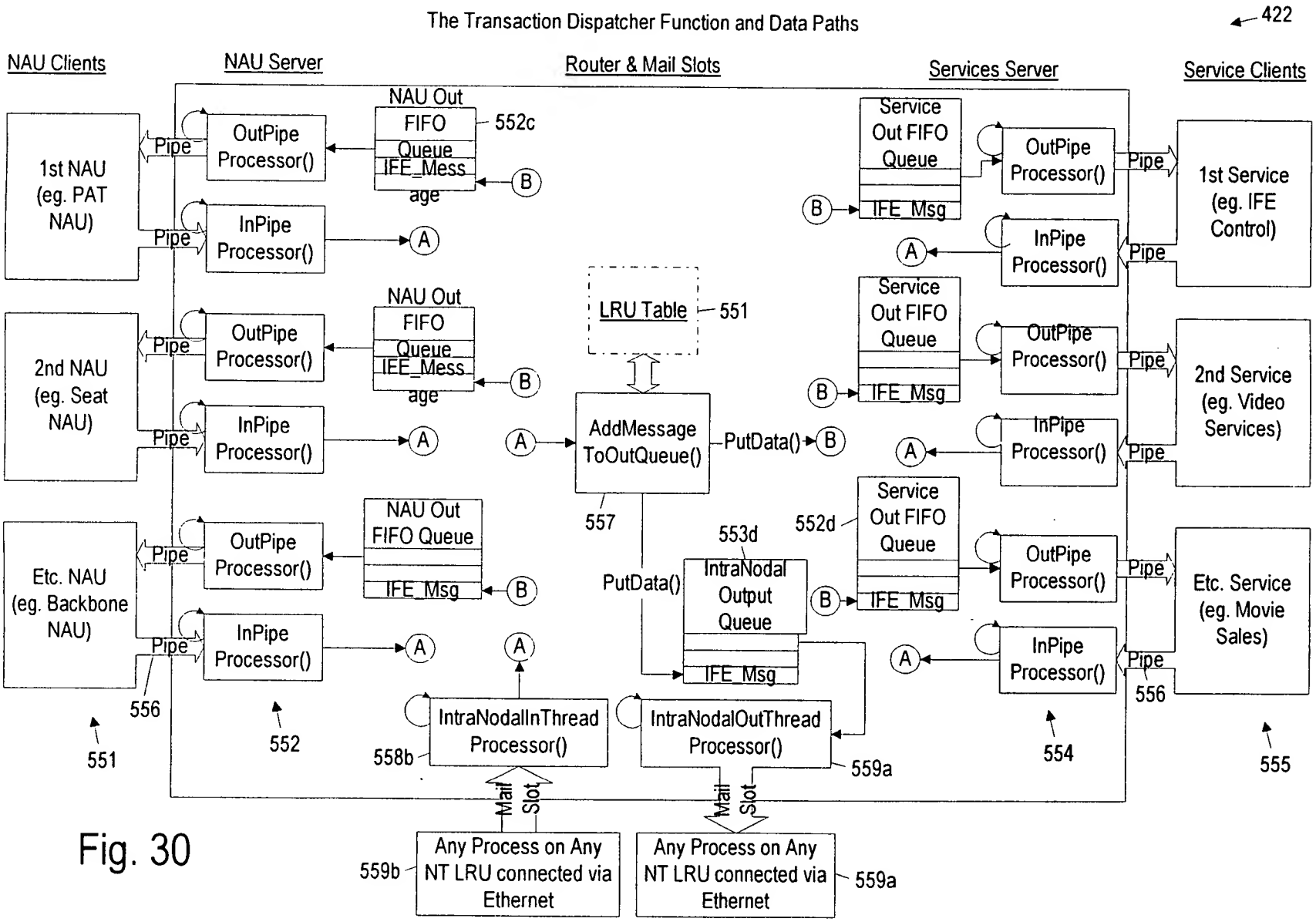

The Transaction Dispatcher Function and Data Paths
422
NAU Clients
NAU Server
Router & Mail Slots
Services Server
Service Clients
1st NAU (eg. PAT NAU)
2nd NAU (eg. Seat NAU)
Etc. NAU (eg. Backbone NAU)
Pipe
OutPipe Processor()
InPipe Processor()
NAU Out FIFO Queue
IFE_Message
552c
A
B
LRU Table
551
AddMessage ToOutQueue()
PutData()
557
IntraNodal Output Queue
553d
IFE_Msg
IntraNodalInThread Processor()
IntraNodalOutThread Processor()
558b
559a
Mail Slot
Any Process on Any NT LRU connected via Ethernet
559b
Service Out FIFO Queue
552d
1st Service (eg. IFE Control)
2nd Service (eg. Video Services)
Etc. Service (eg. Movie Sales)
556
551
552
554
555

Fig. 30

Fig. 31

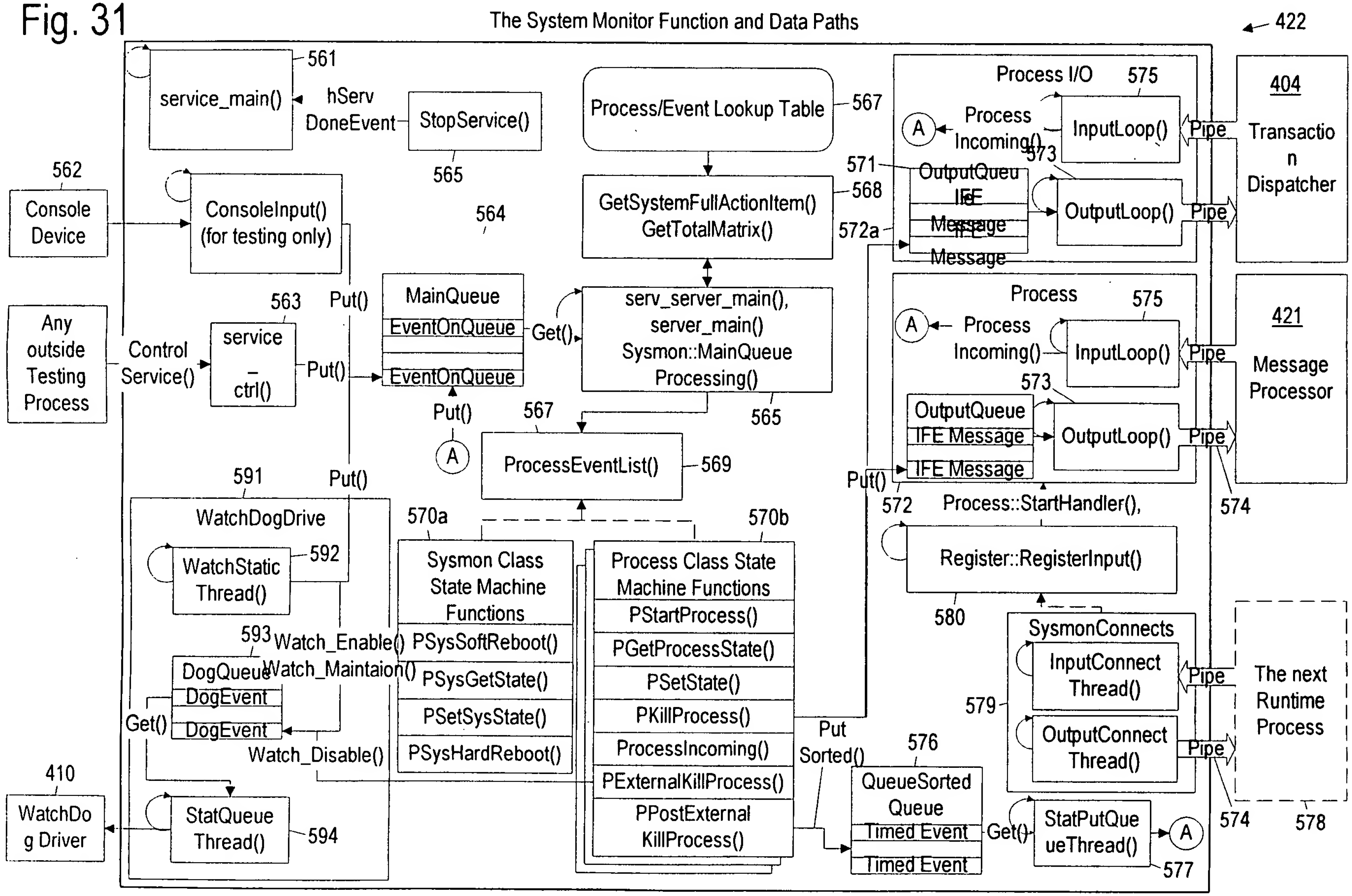

The System Monitor Function and Data Paths
422
561
service_main()
hServ
DoneEvent
StopService()
565
562
Console Device
ConsoleInput() (for testing only)
Put()
564
Any outside Testing Process
Control Service()
563
service _ ctrl()
Put()
MainQueue
EventOnQueue
EventOnQueue
Get()
Put()
A
567
Process/Event Lookup Table
567
GetSystemFullActionItem()
GetTotalMatrix()
568
serv_server_main(),
server_main()
Sysmon::MainQueue
Processing()
565
ProcessEventList()
569
591
Put()
WatchDogDrive
WatchStatic Thread()
592
593
DogQueue
DogEvent
DogEvent
Watch_Enable()
Watch_Maintaion()
Watch_Disable()
Get()
410
WatchDog Driver
StatQueue Thread()
594
570a
Sysmon Class State Machine Functions
PSysSoftReboot()
PSysGetState()
PSetSysState()
PSysHardReboot()
570b
Process Class State Machine Functions
PStartProcess()
PGetProcessState()
PSetState()
PKillProcess()
ProcessIncoming()
PExternalKillProcess()
PPostExternal KillProcess()
Put
Sorted()
576
QueueSorted Queue
Timed Event
Timed Event
Get()
StatPutQueueThread()
A
577
Process I/O
575
A
Process Incoming()
InputLoop()
571
573
OutputQueu
IFE
Message
IFE
Message
OutputLoop()
572a
Pipe
Pipe
404
Transaction Dispatcher
Process
575
A
Process Incoming()
InputLoop()
573
OutputQueue
IFE Message
IFE Message
OutputLoop()
Pipe
Pipe
421
Message Processor
574
Put()
572
Process::StartHandler(),
Register::RegisterInput()
580
SysmonConnects
InputConnect Thread()
OutputConnect Thread()
579
Pipe
Pipe
The next Runtime Process
574
578

Fig. 32

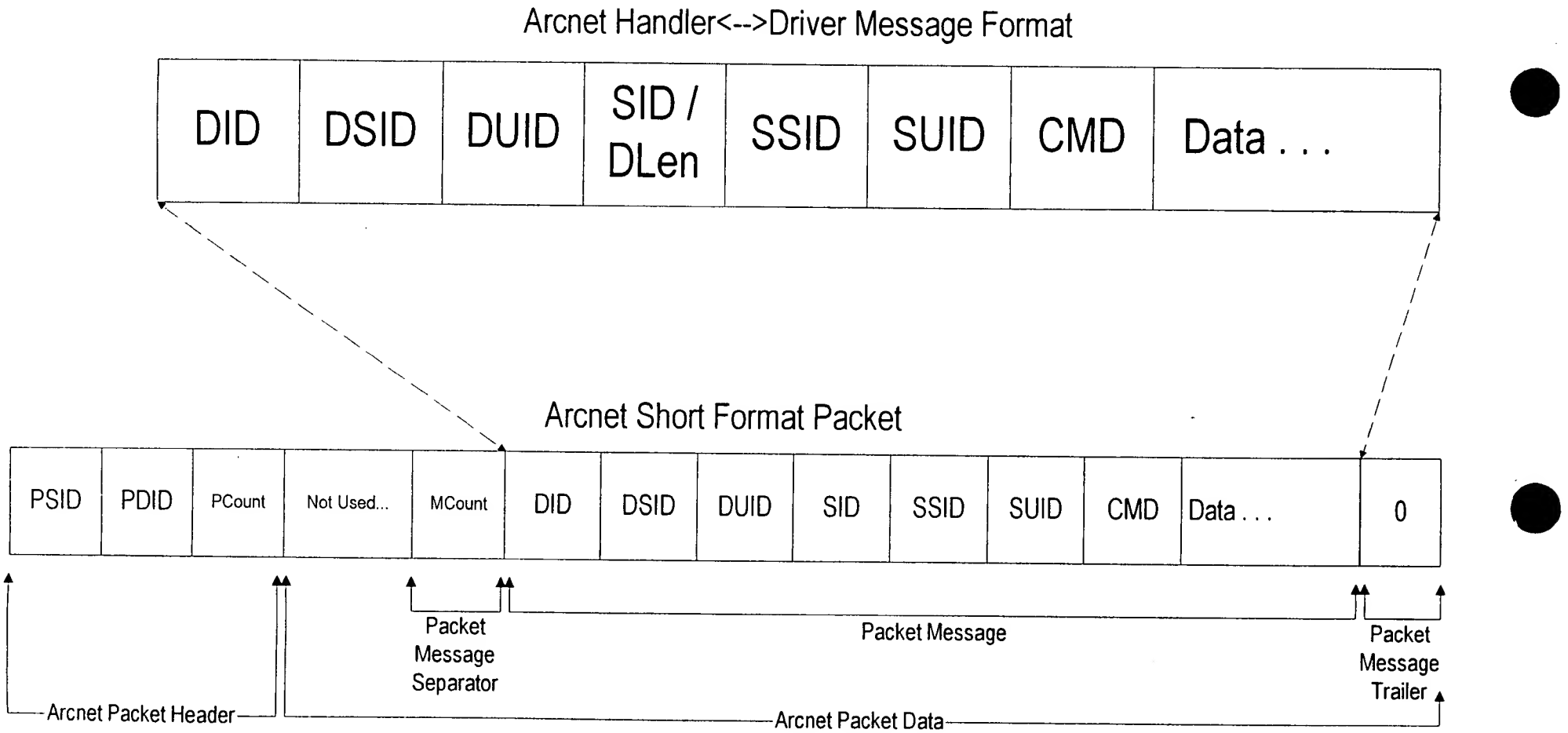

Arcnet Handler<-->Driver Message Format
DID
DSID
DUID
SID / DLen
SSID
SUID
CMD
Data . . .
Arcnet Short Format Packet
PSID
PDID
PCount
Not Used...
MCount
DID
DSID
DUID
SID
SSID
SUID
CMD
Data . . .
0
Packet Message Separator
Packet Message
Packet Message Trailer
Arcnet Packet Header
Arcnet Packet Data

Fig. 33

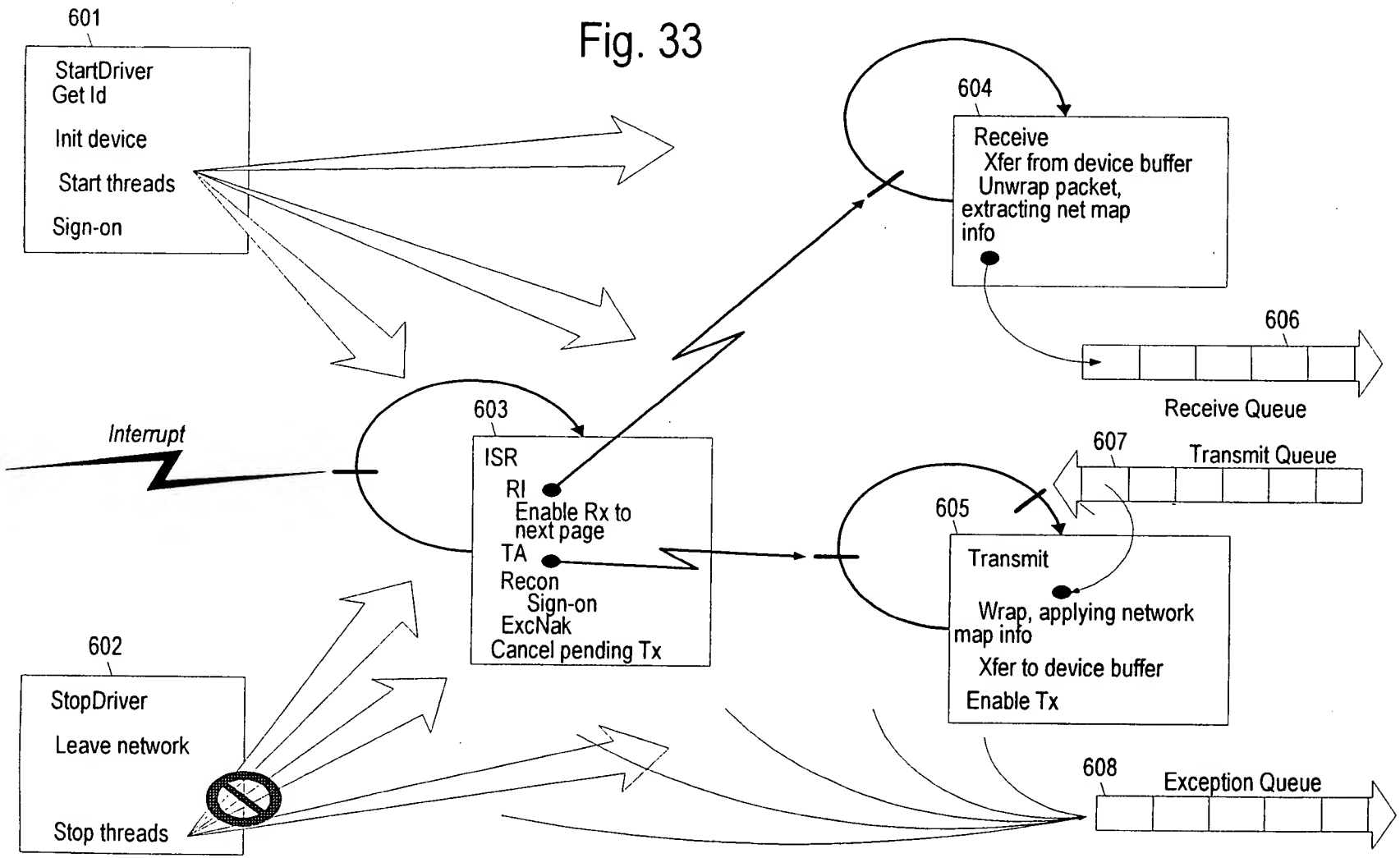

601
StartDriver
Get Id
Init device
Start threads
Sign-on
604
Receive
Xfer from device buffer
Unwrap packet, extracting net map info
606
Receive Queue
Interrupt
603
ISR
RI
Enable Rx to next page
TA
Recon
Sign-on
ExcNak
Cancel pending Tx
607
Transmit Queue
605
Transmit
Wrap, applying network map info
Xfer to device buffer
Enable Tx
602
StopDriver
Leave network
Stop threads
608
Exception Queue

Fig. 34

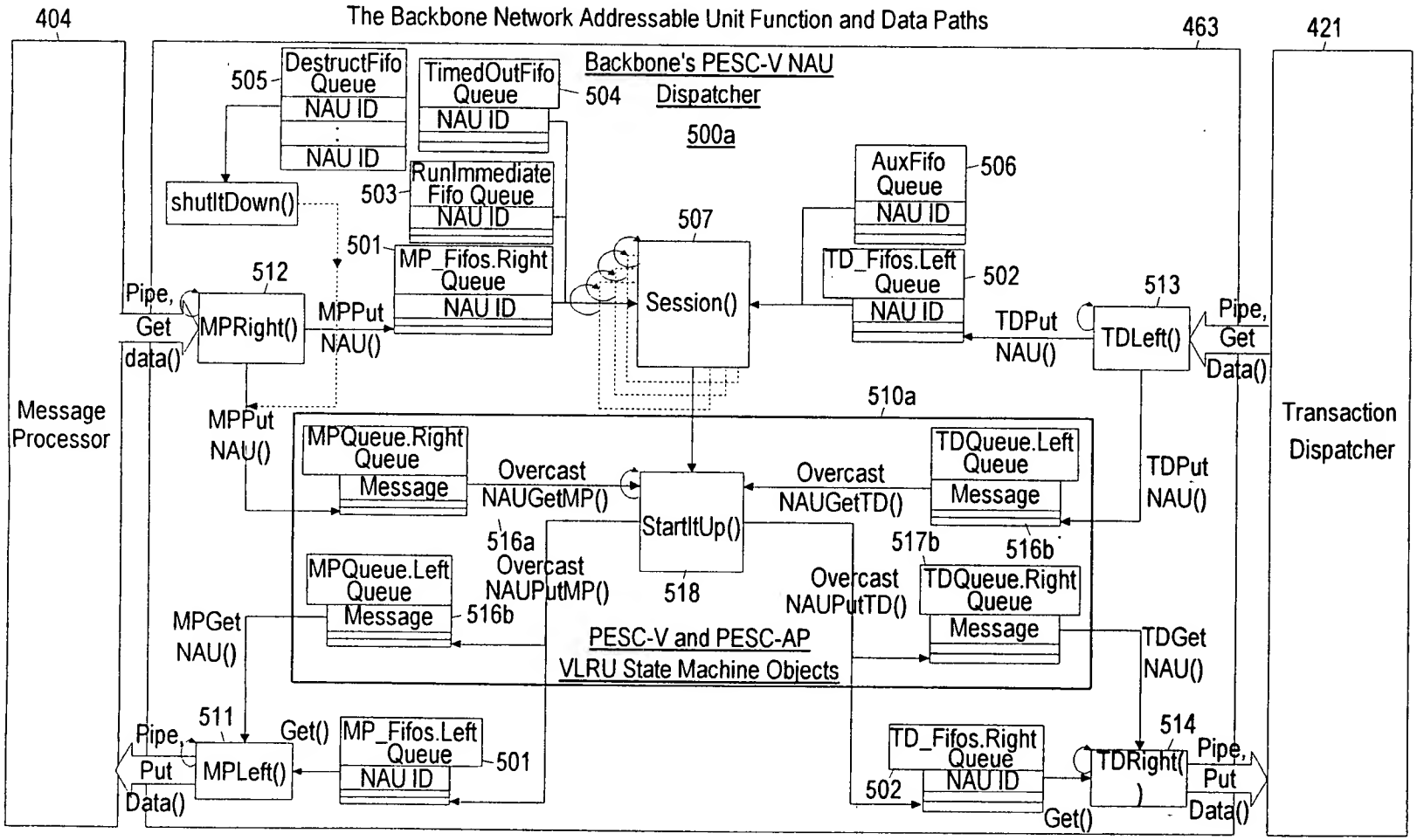

The Backbone Network Addressable Unit Function and Data Paths
404
463
421
Backbone's PESC-V NAU
Dispatcher
500a
DestructFifo Queue
NAU ID
NAU ID
505
TimedOutFifo Queue
NAU ID
504
RunImmediate Fifo Queue
NAU ID
503
shutItDown()
AuxFifo Queue
NAU ID
506
507
MP_Fifos.Right Queue
NAU ID
501
TD_Fifos.Left Queue
NAU ID
502
512
Pipe,
Get
data()
MPRight()
MPPut
NAU()
Session()
513
TDPut
NAU()
TDLeft()
Pipe,
Get
Data()
Message Processor
Transaction Dispatcher
510a
MPPut
NAU()
MPQueue.Right Queue
Message
Overcast
NAUGetMP()
StartItUp()
Overcast
NAUGetTD()
TDQueue.Left Queue
Message
TDPut
NAU()
516a
517b
516b
MPQueue.Left Queue
Message
516b
Overcast
NAUPutMP()
518
Overcast
NAUPutTD()
TDQueue.Right Queue
Message
MPGet
NAU()
PESC-V and PESC-AP
VLRU State Machine Objects
TDGet
NAU()
511
Pipe,
Put
Data()
MPLeft()
Get()
MP_Fifos.Left Queue
NAU ID
501
TD_Fifos.Right Queue
NAU ID
502
514
TDRight( )
Get()
Pipe,
Put
Data()

Fig. 35

The Seat Network Addressable Units Function and Data Paths

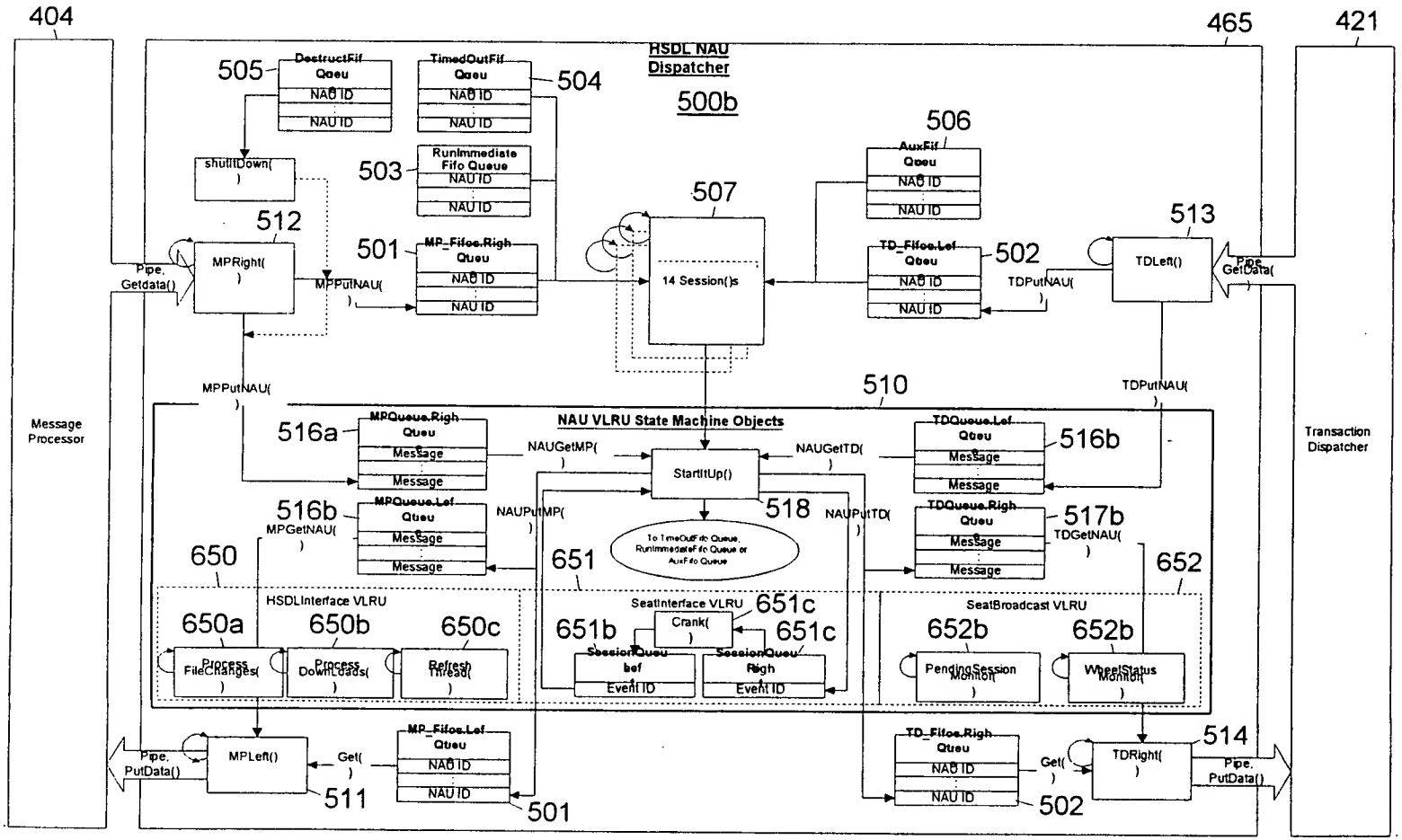


Fig. 36

The VCP Network Addressable Unit Function and Data Paths

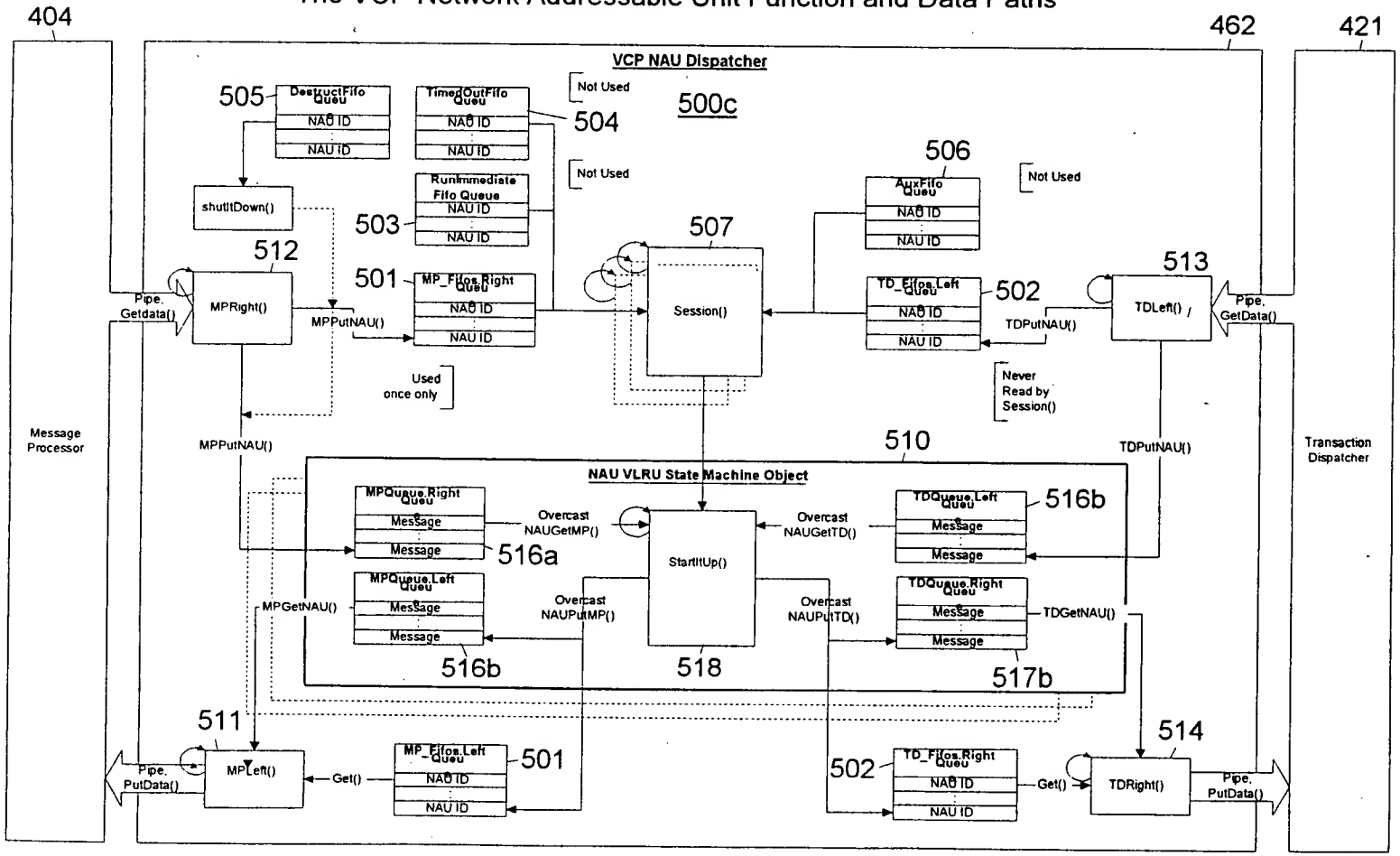


Fig. 37

The TestPort Network Addressable Unit Function and Data Paths

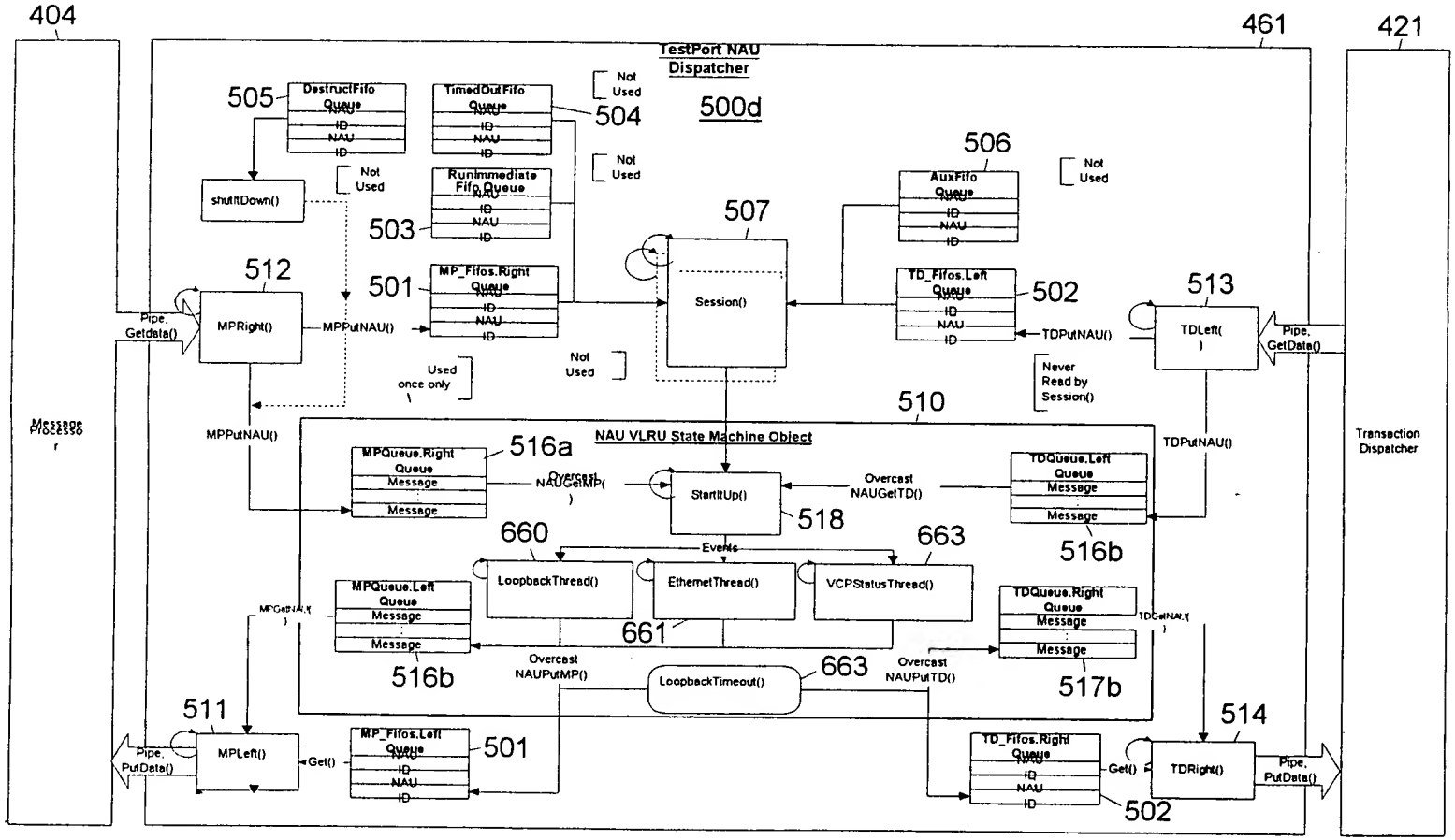
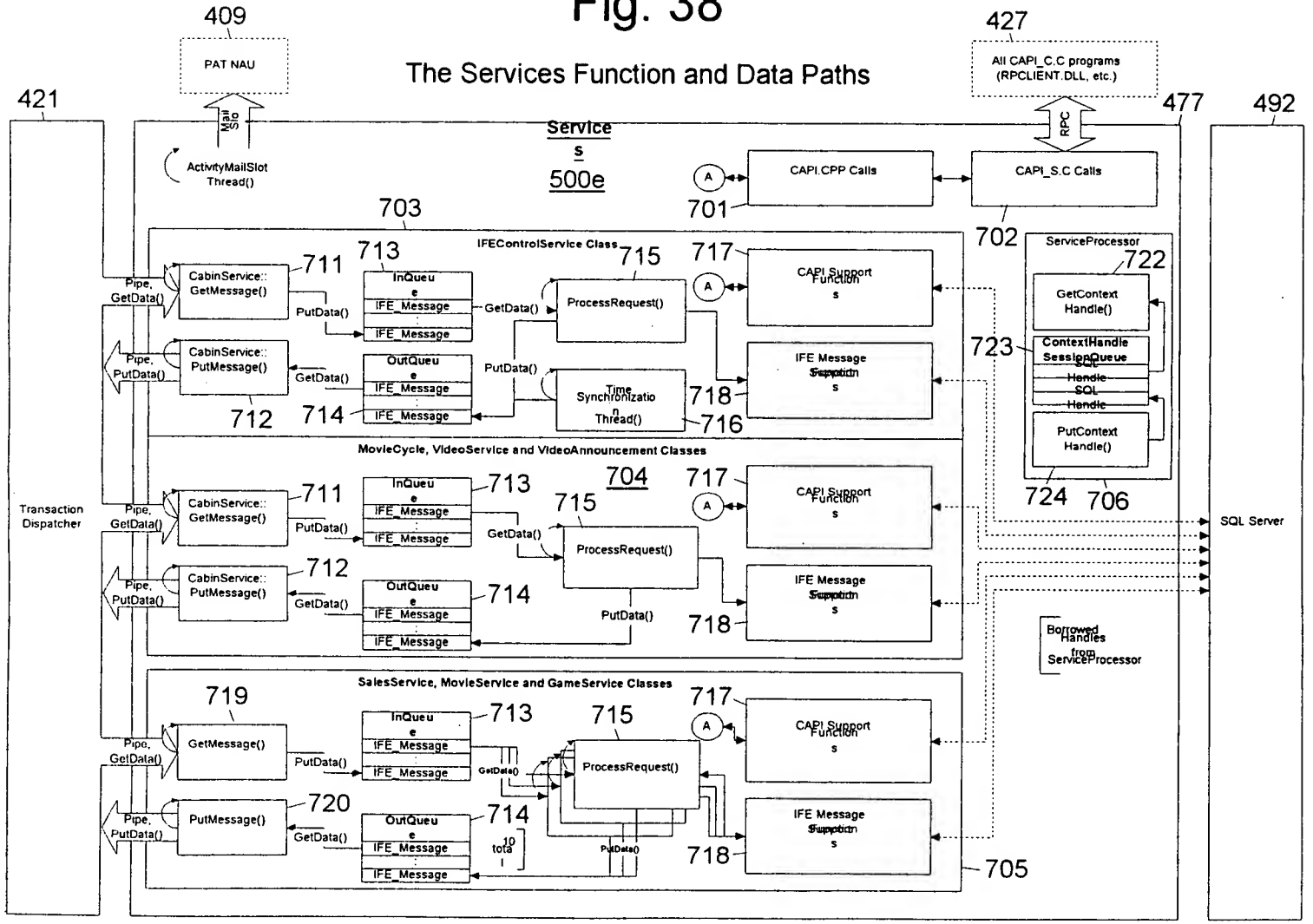


Fig. 38

The Services Function and Data Paths



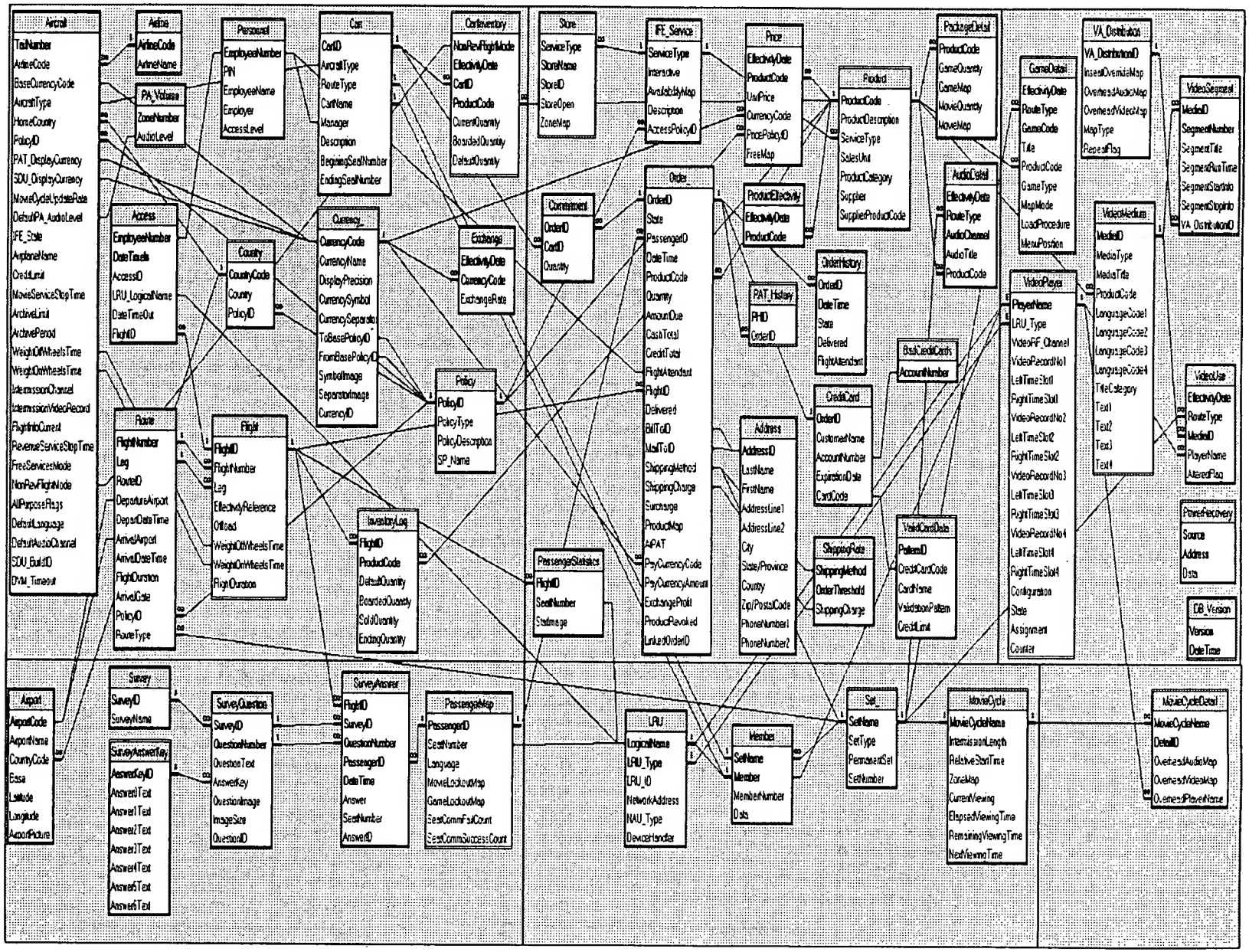

Aircraft
TailNumber
AirlineCode
BaseCurrencyCode
AircraftType
HomeCountry
PolicyID
PAT_DisplayCurrency
SDU_DisplayCurrency
MovieCycleUpdateRate
DefaultPA_AudioLevel
IFE_State
AirplaneName
CreditLimit
MovieServiceStopTime
ArchiveLimit
ArchivePeriod
WeightOffWheelsTime
WeightOnWheelsTime
UplinkMissionChannel
UplinkMissionVideoRecord
FlightInfoCurrent
RevenueServiceStopTime
FreeServicesMode
NonRevFlightMode
AllPurposePings
DefaultLanguage
DefaultAudioChannel
SDU_BuildID
DVM_Timeout
Airline
AirlineCode
AirlineName
PA_Volume
ZoneNumber
AudioLevel
Personnel
EmployeeNumber
PIN
EmployeeName
Employer
AccessLevel
Cart
CartID
AircraftType
RouteType
CartName
Manager
Description
BeginningSealNumber
EndingSealNumber
ConvenienceKey
NonRevFlightMode
EffectivityDate
CartID
ProductCode
CurrentQuantity
BoardedQuantity
DefaultQuantity
Store
ServiceType
StoreName
StoreID
StoreOpen
ZoneMap
IFE_Service
ServiceType
Interactive
AvailabilityMap
Description
AccessPolicyID
Price
EffectivityDate
ProductCode
UnitPrice
CurrencyCode
PricePolicyID
FreeMap
Product
ProductCode
ProductDescription
ServiceType
SalesUnit
ProductCategory
Supplier
SupplierProductCode
PackageDetail
ProductCode
GameQuantity
GameMap
MovieQuantity
MovieMap
GameDetail
EffectivityDate
RouteType
GameCode
Title
ProductCode
GameType
MapMode
LoadProcedure
MenuPosition
VA_Distribution
VA_DistributionID
InsetOverrideMap
OverheadAudioMap
OverheadVideoMap
MapType
RepeatFlag
VideoSegment
MediaID
SegmentNumber
SegmentTitle
SegmentRunTime
SegmentStartInfo
SegmentStopInfo
VA_DistributionID
Access
EmployeeNumber
DateTimeIn
AccessID
LRU_LogicalName
DateTimeOut
FlightID
Country
CountryCode
Country
PolicyID
Currency
CurrencyCode
CurrencyName
DisplayPrecision
CurrencySymbol
CurrencySeparator
ToBasePolicyID
FromBasePolicyID
SymbolImage
SeparatorImage
CurrencyID
Exchange
EffectivityDate
CurrencyCode
ExchangeRate
Commitment
OrderID
CartID
Quantity
Order
OrderID
State
PassengerID
DateTime
ProductCode
Quantity
AmountDue
CashTotal
CreditTotal
FlightAttendant
FlightID
Delivered
BillToID
MailToID
ShippingMethod
ShippingCharge
Surcharge
ProductMap
APAT
PayCurrencyCode
PayCurrencyAmount
ExchangeProfit
ProductRevoked
LinkedOrderID
ProductEffectivity
EffectivityDate
ProductCode
PAT_History
PHID
OrderID
OrderHistory
OrderID
DateTime
State
Delivered
FlightAttendant
BankCreditCards
AccountNumber
CreditCard
OrderID
CustomerName
AccountNumber
ExpirationDate
CardCode
AudioDetail
EffectivityDate
RouteType
AudioChannel
AudioTitle
ProductCode
VideoPlayer
PlayerName
LRU_Type
VideoRF_Channel
VideoRecordNo1
LeftTimeSlot1
FlightTimeSlot1
VideoRecordNo2
LeftTimeSlot2
FlightTimeSlot2
VideoRecordNo3
LeftTimeSlot3
FlightTimeSlot3
VideoRecordNo4
LeftTimeSlot4
FlightTimeSlot4
Configuration
State
Assignment
Courier
VideoMedium
MediaID
MediaType
MediaTitle
ProductCode
LanguageCode1
LanguageCode2
LanguageCode3
LanguageCode4
TitleCategory
Text1
Text2
Text3
Text4
VideoUse
EffectivityDate
RouteType
MediaID
PlayerName
AlteredFlag
PhoneRecovery
Source
Address
Data
DB_Version
Version
DateTime
Route
FlightNumber
Leg
RouterID
DepartureAirport
DepartDateTime
ArrivalAirport
ArrivalDateTime
FlightDuration
ArrivalGate
PolicyID
RouteType
Flight
FlightID
FlightNumber
Leg
EffectivityReference
Offload
WeightOffWheelsTime
WeightOnWheelsTime
FlightDuration
Policy
PolicyID
PolicyType
PolicyDescription
SP_Name
InventoryLog
FlightID
ProductCode
DefaultQuantity
BoardedQuantity
SoldQuantity
EndingQuantity
PassengerStatistics
FlightID
SeatNumber
StatImage
Address
AddressID
LastName
FirstName
AddressLine1
AddressLine2
City
State/Province
Country
Zip/PostalCode
PhoneNumber1
PhoneNumber2
ShippingRate
ShippingMethod
OrderThreshold
ShippingCharge
ValidCardData
PatternID
CreditCardCode
CardName
ValidationPattern
CreditLimit
Airport
AirportCode
AirportName
CountryCode
Easa
Latitude
Longitude
AirportPicture
Survey
SurveyID
SurveyName
SurveyAnswerKey
AnswerKeyID
Answer1Text
Answer1Text
Answer2Text
Answer3Text
Answer4Text
Answer5Text
Answer6Text
SurveyQuestion
SurveyID
QuestionNumber
QuestionText
AnswerKey
QuestionImage
ImageSize
QuestionID
SurveyAnswer
FlightID
SurveyID
QuestionNumber
PassengerID
DateTime
Answer
SeatNumber
AnswerID
PassengerMap
PassengerID
SeatNumber
Language
MovieLockoutMap
GameLockoutMap
SeatCommFailCount
SeatCommSuccessCount
LRU
LogicalName
LRU_Type
LRU_ID
NetworkAddress
NAU_Type
DeviceHandler
Member
SetName
Member
MemberNumber
Data
Set
SetName
SetType
PermanentSet
SetNumber
MovieCycle
MovieCycleName
IntermissionLength
RelativeStartTime
ZoneMap
CurrentViewing
ElapsedViewingTime
RemainingViewingTime
NextViewingTime
MovieCycleDetail
MovieCycleName
DetailID
OverheadAudioMap
OverheadVideoMap
OverheadPlayerName

Fig. 39

Fig. 40

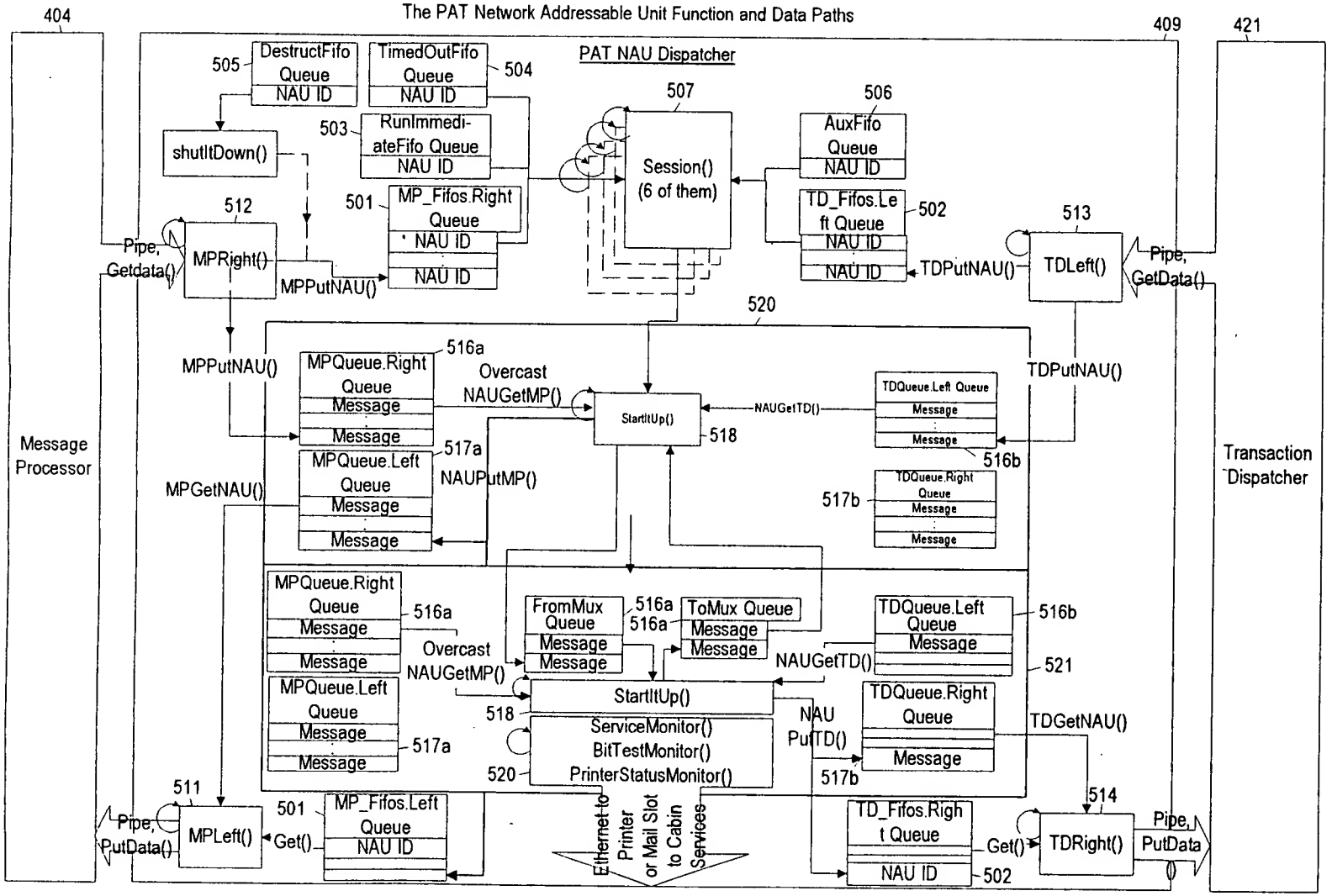

The PAT Network Addressable Unit Function and Data Paths
404
409
421
PAT NAU Dispatcher
DestructFifo Queue NAU ID
505
TimedOutFifo Queue NAU ID
504
RunImmediateFifo Queue NAU ID
503
shutItDown()
507
Session() (6 of them)
506
AuxFifo Queue NAU ID
TD_Fifos.Left Queue NAU ID NAU ID
502
MP_Fifos.Right Queue NAU ID NAU ID
501
512
MPRight()
Pipe, Getdata()
MPPutNAU()
TDPutNAU()
513
TDLeft()
Pipe, GetData()
520
MPPutNAU()
MPQueue.Right Queue Message Message
516a
Overcast NAUGetMP()
StartItUp()
518
NAUGetTD()
TDQueue.Left Queue Message Message
516b
TDPutNAU()
MPQueue.Left Queue Message Message
517a
NAUPutMP()
MPGetNAU()
TDQueue.Right Queue Message Message
517b
Message Processor
Transaction Dispatcher
MPQueue.Right Queue Message Message
516a
FromMux Queue Message Message
516a
ToMux Queue Message Message
TDQueue.Left Queue Message
516b
Overcast NAUGetMP()
NAUGetTD()
521
MPQueue.Left Queue Message Message
517a
StartItUp()
518
ServiceMonitor()
BitTestMonitor()
PrinterStatusMonitor()
520
NAU PutTD()
TDQueue.Right Queue Message
517b
TDGetNAU()
511
Pipe, PutData()
MPLeft()
501
Get()
MP_Fifos.Left Queue NAU ID
Ethernet to Printer or Mail Slot to Cabin Services
TD_Fifos.Right Queue NAU ID
502
Get()
514
TDRight()
Pipe, PutData()

Fig. 41

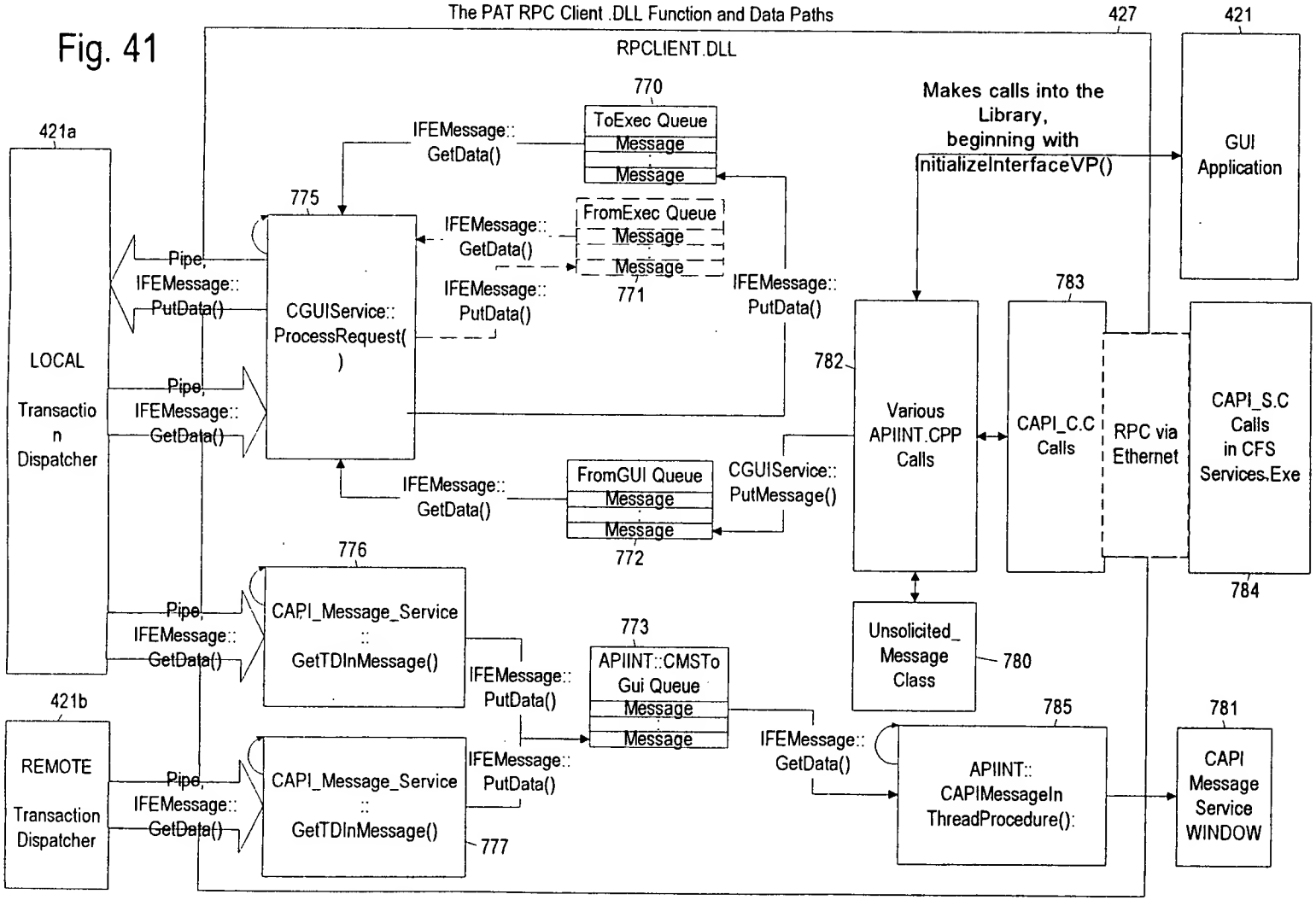

The PAT RPC Client .DLL Function and Data Paths
RPCLIENT.DLL
427
421
GUI Application
Makes calls into the Library, beginning with InitializeInterfaceVP()
770
ToExec Queue
Message
Message
IFEMessage:: GetData()
775
FromExec Queue
Message
Message
771
IFEMessage:: GetData()
IFEMessage:: PutData()
IFEMessage:: PutData()
Pipe, IFEMessage:: PutData()
CGUIService:: ProcessRequest( )
421a
LOCAL Transactio n Dispatcher
Pipe, IFEMessage:: GetData()
783
782
Various APIINT.CPP Calls
CAPI_C.C Calls
RPC via Ethernet
CAPI_S.C Calls in CFS Services.Exe
784
FromGUI Queue
Message
Message
772
IFEMessage:: GetData()
CGUIService:: PutMessage()
776
CAPI_Message_Service :: GetTDInMessage()
Pipe, IFEMessage:: GetData()
773
APIINT::CMSTo Gui Queue
Message
Message
IFEMessage:: PutData()
Unsolicited_ Message Class
780
785
781
421b
REMOTE Transaction Dispatcher
Pipe, IFEMessage:: GetData()
CAPI_Message_Service :: GetTDInMessage()
IFEMessage:: PutData()
777
IFEMessage:: GetData()
APIINT:: CAPIMessageIn ThreadProcedure():
CAPI Message Service WINDOW

Fig. 42a

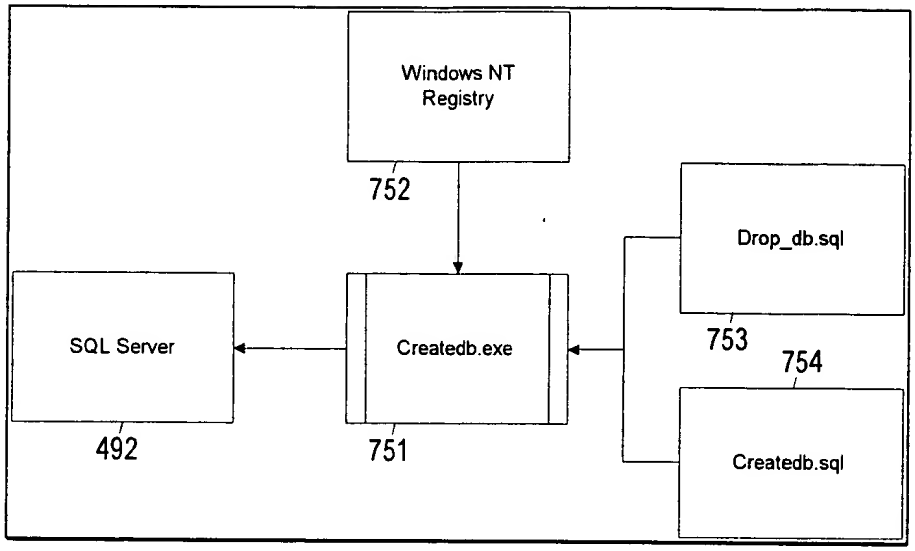


Fig. 42b